Journal of The Asiatic Society

1840

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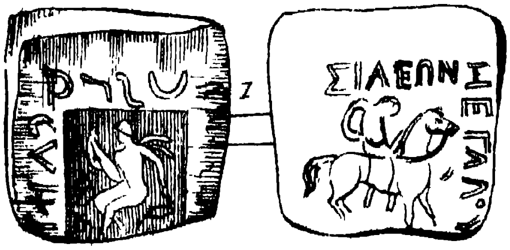
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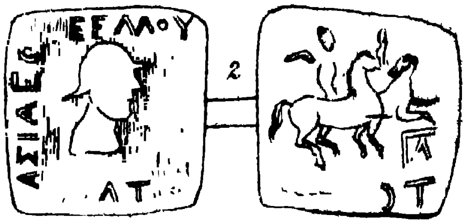
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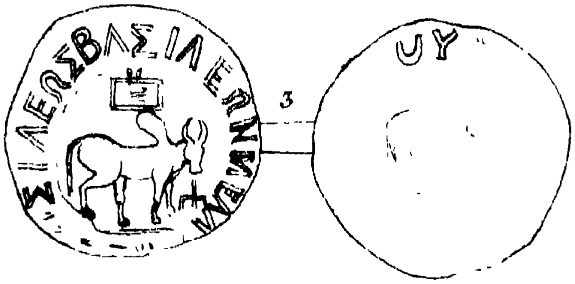
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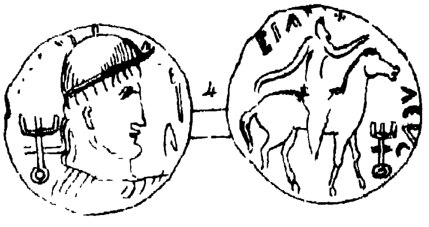
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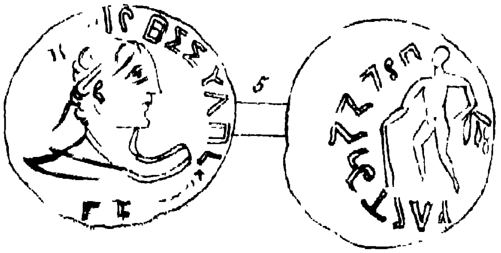
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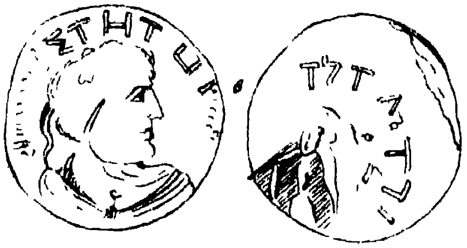
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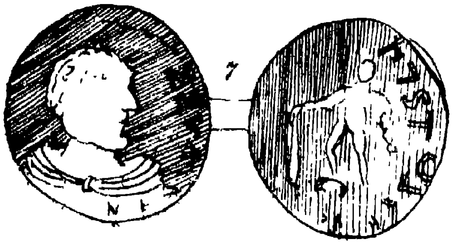
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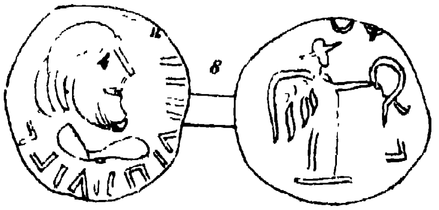
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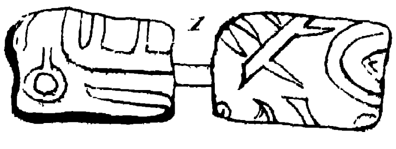
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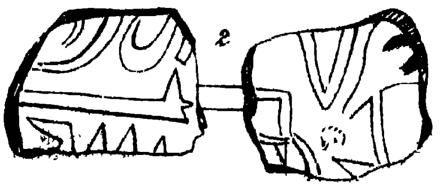
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ambitious title, to a second Eucratides; the son, successor, and murderer of Eucratides the First—thus giving the first class, with the bare diademed head and the simpler title, to Eucratides the murdered Prince. But that Eucratides *the Great,* was the murdered prince, and not the murderer, we may infer from the language of Justin (lib. 42, c. 6) who, speaking of Mithridates the Parthian, and of Eucratides the murdered prince of Bactria, calls them both "*great men*"— We have also the testimony afforded by the small square copper coin of Eucratides, published in the Journal of the Asiatic Society of Bengal for November, 1836, which gives the title of "*Great*" to the bare-headed and diademed prince, and proves that this creation of a second Eucratides is without any foundation. The existence of a second Eucratides is, besides, no where mentioned in ancient history; but the supposition that there were two princes of this name, first started, I believe by Bayer, has been gradually gaining strength, until by the knowledge of these marked distinctions in the coins bearing the name of Eucratides, it has been almost universally believed. Fortunately for the cause of true history, we know from Dr. Lord's beautiful coin (published in the Bengal Asiatic Society's Journal for July, 1838) that Eucratides the *Great* king with the helmed head was the son of Heliocles and Laodice: and therefore it follows almost conclusively, that Eucratides the king, and Eucratides the *Great* king, were one and the same person. It is however quite in accordance with Grecian custom, that the son of Heliocles should have been called Eucratides, after his grandfather: but that the father of Heliocles, even supposing he had been named Eucratides, was a king of Bactria, is highly improbable. On the same grounds of different types and epithets existing on coins bearing the same prince's name, we might create two Menanders, double Heliocles and Hermœus, and multiply Azes into at least a dozen princes.

No. 3. This coin may be at once seen to belong to Azes, and is a very bad specimen of the commonest type of the coins of that prince. I have seen at least one hundred coins of this very type; and three engravings of the same are to be found in the Bengal Asiatic Society's Journal, vol. 4, pl. 22, figs. 1, 2, 3; one of the same type is likewise figured from a miserable specimen in the 7th number of the Numismatic Journal of London, pl. 3. fig. 34;

and the same coin is likewise described by M. Raoul-Rochette in the Journal des Savans for April 1836, page 201—and by M. Jacquet in the Journal Asiaticque for February, 1836, page 167. The description of this coin is as follows—Round copper piece of large size.

Obverse.—The humped bull of India walking to the right, over which is a square monogram with two diagonal lines. Greek legend—ΒΑΣΙΛΕΩΣ ΒΑΣΙΛΕΩΝ ΜΕΓΑΛΟΥ ΑΖΟΥ. "(Coin) of the great king of kings, Azes."

Reverse.—The *sinha*, or maneless lion of India, walking to the right, over which is the monogram composed of the Bactrian letters *s. p. l. i.;* surrounded by the legend in Bactrian characters, *Maharajasa Rajatirajasa Mahatasa Azasa.* "(Coin) of the great king of kings, the mighty Azes."

No. 4.—Is a coin of an anonymous prince, with sounding titles, whose titles are however not in the possessive case, as stated by Captain Hay; but he is quite right when he says that none of these coins have any king's name upon them. The following is a description of this coin.

Obverse.—Head of the king radiated and diademed to the right, the ends of the diadem floating behind the head, the chlamys thrown over the shoulder: in the right hand, which is extended, is a sceptre or sword, which on some coins changes into a cross with two streamers hanging from it: in the field a monogram composed of a trident and circle joined by a cross; the whole surrounded by a dotted circle.

Reverse.—A person on horseback to the right, with the right arm raised, and holding in the hand a cross: behind the head are two streamers, and before the horse is the monogram already described. Legend in bad Greek ΒΑϹΙΛΕΥϹ ΒΑϹΙΛΕωΝ ϹωΤΗΡ ΜΕΓΑS The great king of kings, the Saviour."

Nos. 5, 6, 7.—These three coins are of a prince whose name varied on different, specimens as observed by Captain Hay in three coins which he has figured: some pieces of this type bear the name of Hermœus, some have Kadphises and Kadphizes, whilst others have Kadaphes and Kadphes, all of which names, except the first, agree so nearly, as to warrant the conclusion that they belong to the same prince; and at the same time they furnish us with an almost convincing proof, that the name of the Indo-Scythic prince, whose coins are so numerous, was Kadphises and not Mo-kadphises ; a reading which I believe has found but two advocates, Messrs. Jacquet and R. Rochette. The differences in the names observable on these coins arise, in my opinion, solely from the artist's ignorance of the Greek character; which the inferior workmanship of the coins proves to belong to a declining period of the Græcio-Bactrian power. The general description of these coins is as follows. Round copper piece, of middle size.

Obverse.—The king's head to the right, bare and diademed, with the ends of the diadem floating behind the head, and the chlamys on the shoulder: legend in barbarous Greek BACIΛEΩC ΣTHP□Σ ΣY (or ΣYA□) EPMAI□Y (or KAΔΦIZ□Y or KAΔΦE[□Y &c.) " (Coin) of the saviour king Hermœus (or Kadphises).—On all the coins of this type which I have seen, the Ω is wanting in the word ΣΩTHPOΣ.

Reverse.—Figure of Hercules naked, standing to the front; the lion's skin hanging over his left arm, his right hand leaning on his club, which rests on the ground. The legend, in Bactrian characters, I cannot read satisfactorily. I have carefully examined about twenty specimens of this type, and I have found that all of them, whether belonging to Hermœus or to Kadphises, bear, with some slight variations, the same Bactrian legend. This is an important fact, which I am unable to account for. Captain Hay's Euthydemus, published in the 97th No. of the Journal, is a coin of this type, with the name of EPMAIOY plainly legible.

No. 8.—A round copper coin, of middle size, and apparently in bad preservation.

Obverse.—Bearded head of the king, bare and diademed to the right, the ends of the diadem floating behind the head. Legend in bad Greek BA[IΛEШ[[ШTHP□[YNΔ□ΦEPP□Y "(Coin) of the saviour king Undopherres."

Reverse.—Figure of Victory winged, standing to the right, and holding in her right hand a chaplet with two ends hanging down. Legend in Bactrian characters, " *Maharajasa* (name not satisfactorily readable) *nandatasa.*" " Coin of the great king, the saviour (Indopherres ?)" I have examined about twelve specimens of this type, on most of which the letters of the name are clear and well defined, notwithstanding which, the king's name has proved an insurmountable difficulty.

The two Moosulmaun lumps of copper at the foot of the plate require no notice.

PLATE II.

No. 1. A square copper coin of middle size, and apparently in good preservation.

Obverse.—The figure of Hercules naked, standing to the front, holding the club and lion's skin in his left hand, and crowning himself with his right hand; a type similar to that on the coins of Euthydemus and Demetrius. Legend on three sides *βασιλεως* *βα*ΣΙΛΕΩΝ ΜΕΓΑΛΟΥ οΝΩΝοΥ. "(Coin) of the great king of kings, Vonones."

Reverse.—Figure of Minerva armed, half turned to the left, with a buckler on the left arm. Bactrian legend in three lines [*Maharajasa rajatirajasa mahatasa*] *Balabarasa* "[coin of the great king, the king of kings, the mighty] Balbara," the name being the only existing portion of the Bactrian legend.

No. 2. A square copper coin, of middle size, in very good preservation.

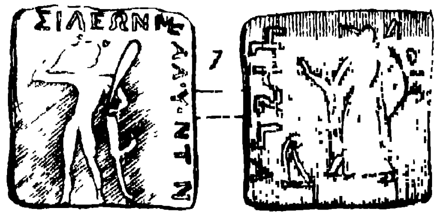
Obverse.—The king's head bare and diademed, to the right, with the shoulder clothed. Legend in three lines ΒΑΣΙΛΕΩΣ ΣΩΤΗΡΟΣ ΕΡΜΑΙΟΥ. "(Coin) of the saviour king Hermœus."

Reverse.—A horse moving to the right; beneath the horse a Grecian monogram composed of the letters Φ and Ι. Bactrian legend in three lines: *Maharajasa dadatasa Ermayasa.* "(Coin) of the great king, the saviour Hermœus."

No. 3. A square copper coin, of middle size, seemingly in good order.

Obverse.—The king's head bare to the right, the shoulder clothed. Legend in three lines ΒΑΣΙΛΕΩΣ ΑΝΙΚΗΤΟΥ ΛΥΣΙΟΥ. "(Coin) of the invincible king Lysias.

Reverse.—The bonnets of the Dioscuri, surmounted by two curves —over which are two dots, most probably intended for the stars Castor and Pollux, which are seen over the bonnets of the Dioscuri on the coins of Antialcidas; these stars escaped the observation of Mr. Prinsep, of Professor Wilson, of M. Jacquet, and even of the quick-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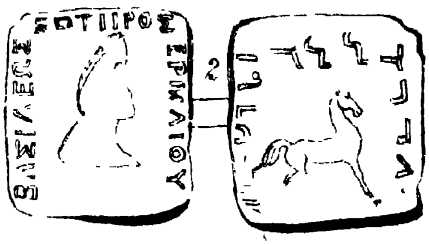
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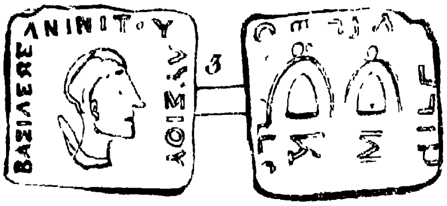
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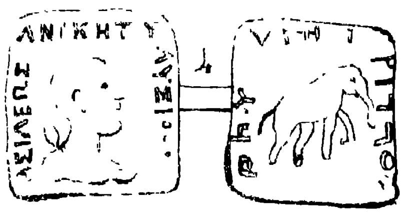
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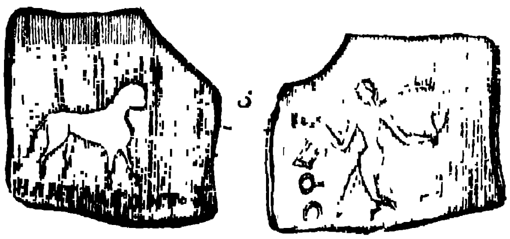
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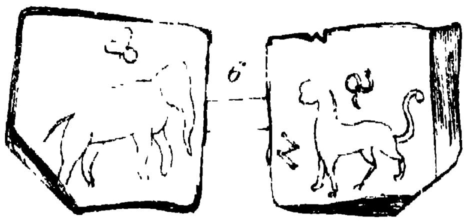
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sighted M. Raoul Rochette. Beneath the bonnets are the monogram TA and the letter Σ. —— Bactrian legend in three lines, *Maharajasa Assavihatasa Lisiasa* "coin of the great king, the invincible Lysias."

The bonnets of the Dioscuri which have been long familiar as the type of all the known copper coins of Antialcidas, and of some rare small silver and small copper pieces of Eucratides, now figured for the first time on the coin of Lysias; and this fact serves to strengthen the connection between Lysias and Antialcidas already observed in the numismatic coincidences of the monograms on their respective coins, as well as in their corresponding size, thickness, and make; and it may almost warrant us in supposing that those two princes were of the same dynasty as Eucratides, and that they succeeded him at no great interval.

No. 4. A square copper coin of middle size. This is a specimen of the only type of the copper coins of Lysias that was known before the acquisition of the piece just described.

Obverse.—Same as the preceding.

Reverse.—An elephant walking to the right. Bactrian legend as in the coin just described.

No. 5. A square piece of middle size; the right upper corner has been cut off, to bring it, as Captain Hay justly remarks, to some established standard weight.

Obverse.—The sinha, or maneless lion of India walking to the right; Grecian legend in two lines—βασιλεως ΠΑΝΤΑΛΕΟΝΤΟΣ "(coin) of the king Pantaleon."

Reverse.—A figure which has been plausibly supposed to be a Bacchante—Legend in ancient Pali (as read by Mr. James Prinsep) *Pantelawanta,* which reading is not in my opinion quite satisfactory; but I am unable to offer a better, from the want of a more perfect specimen of this coin than has yet been found.

No. 6. A square copper coin of middle size with one of the lower corners cut off.

Obverse.—An elephant walking to the right, over which is a symbol which may be either a Buddhist chaitya, or a representation of mount Meree.

Reverse.—The sinha, or Indian lion, walking to the left; above which is a mark common to Buddism and Brahmanism, called "Twastika," and in the field the same symbol which has appeared on the other side.

Many coins of this type have the two animals walking in opposite directions.

PLATE III.

The Bactrian coins in this plate are so indistinct, and apparently in such bad preservation, that I can only offer my conjectures as to their attribution.

No. 1.—A round copper coin of middle size.

Obverse.—A king's head, helmeted, to the left, and apparently bearded. Legend ΒΑΣΙΛΕ*ως σωτηρος υνσοφε*ΡΡΟΥ. "(coin of the saviour) king (Undoph)erres?"

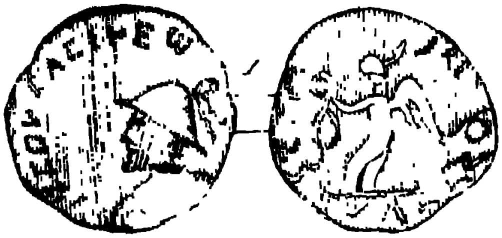
Reverse.—Winged figure of Victory, walking to the left, holding out a chaplet, and with two ends hanging down. Bactrian legend imperfect.

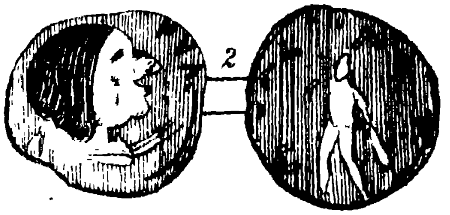
I suppose this piece to belong to Undopherres, for the following reasons; 1st. The type of the reverse is the same figure of Victory found on all the published coins of Inodopherres, but walking in the contrary direction; 2nd. The remains of the Bactrian letters visible, seem to agree with the usual legend of that prince's coins; and, lastly, that appearance of a bearded bust in conjunction with the figure of Victory on the reverse, peculiar to Undopherres alone.

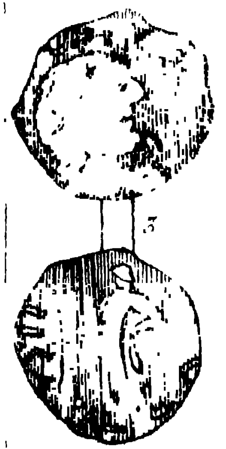
The head looks in a direction contrary to that found on all the known coins of Undopherres, but as the heads on all the existing Bactrian coins look to the right, with the single exception of one type of Menander, this can afford no proof against the supposition that this piece belongs to Undopherres.

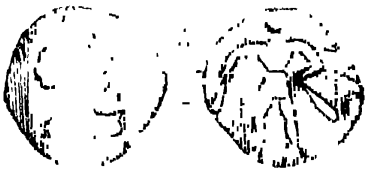
Nos. 2, 3, 4. These appear to be coins, more or less barbarous, of the prince Kadphises, or Kadaphes, already described in my notice of Nos 5, 6, 7, of Pl. I.

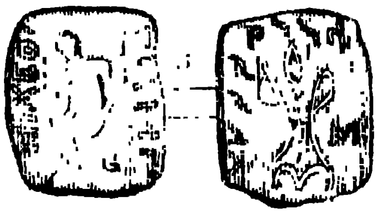
No. 5.—A square copper coin of small size, notwithstanding the curious attitude of the figure as represented in the sketch, I am

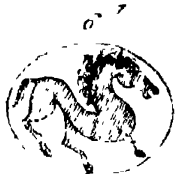


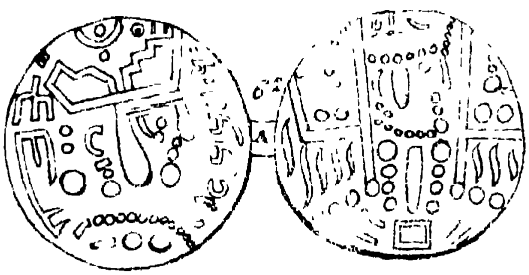


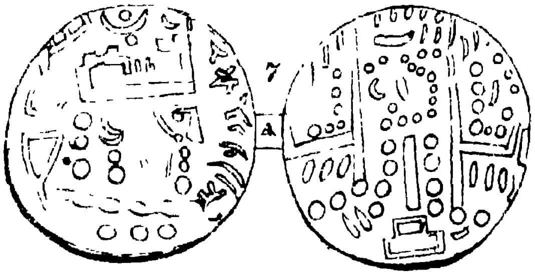


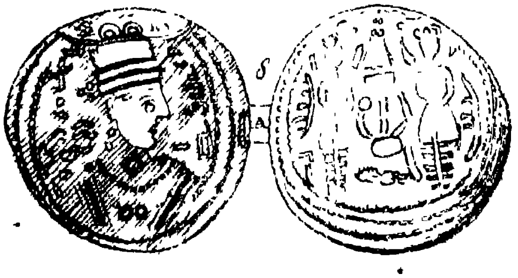


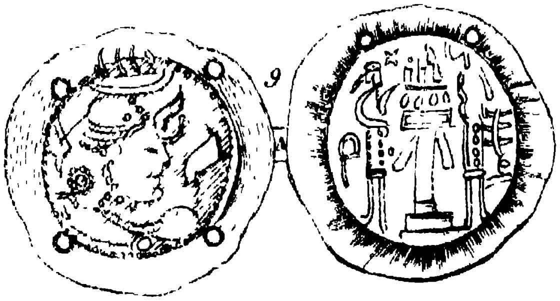












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still able, from the remaining portion of the Bactrian legend, to attribute this piece to its proper owner.

Obverse.—Apollo standing naked, inclined to the left, his left hand resting on a bow, and his right hand holding an arrow. Greek legend in three lines βαΣΙΛΕΩςαπολλοδοτου ΣΩΤΗΡος, " (Coin) of the saviour king (Apollodotus)."

Reverse.—A tripod and a Grecian monogram in the field. Bactrian legend in three lines, *Maharajasa Apaladatasa dadatasa*—" (Coin) of the great king Apollodotus, the saviour."

No. 6.—This is apparently a stone having a rude representation of a horse upon it.

Sassanian Coins.

Of these Sassanian coins, Nos. 6 and 7 alone have any interest attached to them, in the remarkable appearance of a human head rising from the midst of the flames of the altar, supposed by Marsden to be "the genius" of the king himself brought to view by "the performance of religious rites;" but Sir W. Ouseley suggests that "in the human head placed on a fire altar, we may discover Ormuzd, or the divinity existing amidst flames." The former supposition however appears to me the more probable; for in " Hyde's Religio Veterum Persarum," we see a sculpture taken from a Persepolitan Mausoleum, representing, as described by Hyde himself, "a king standing before a fire (altar) and before the sun, as if about to worship, whose spirit or small image is seen about to ascend to heaven on a cloud" and this ascending figure is identical in dress, appearance, and attitude, with the figure of the king worshipping before the fire altar below.

PLATE IV

No. 1.—A round copper coin of large size, very much defaced, but still easily recognizable as a specimen of the common round type of Apollodotus.

Obverse.—Figure of Apollo naked, standing, half-turned to the right, having a quiver attached to his shoulder, and holding in his left hand an arrow inclined downwards: at his back a Grecian monogram legend in pure Greek ΒΑΣΙΛΕΩΣ ΣΩΤΗΡΟΣ ΑΠΟΛΛΟΔΟΤΟΥ. " (Coin) of the saviour king Apollodotus."

Reverse.—A tripod; in the field two Bactrian letters which appear to be *ri* and *u*; legend in Bactrian characters, *Maharajasa nandatasa Apaladatasa.* "(Coin) of the great king, the saviour Apollodotus."

No. 2.—Round copper coin of middle size, and apparently in good preservation.

Obverse.—Head of the king bare and diademed, to the right, with the chlamys on the shoulder. Legend—ΒΑΣΙΛΕΩΣ ΣΩΤΗΡΟΣ ΕΡΜΑΙΟΥ. "(Coin) of the saviour king Hermœus."

Reverse.—The figure of Hercules naked, standing to the front; the lion's skin hanging over his left arm, and the right hand holding his club, which rests on the ground. Legend in Bactrian characters imperfect.

The inclined attitude of the figure of Hercules, which makes Captain Hay suppose that he is leaning back against something, results in my opinion rather from the position of the left hand on the hip, which causes the body to be slightly bent. This inclined attitude, which is more or less so on different specimens, may after all only be intended to show that the figure is in the act of advancing.

No. 3.—A round copper coin of middle size, and very imperfect. This piece is in my opinion only a very bad specimen of the commonest type of the copper coins of Hermœus, of which the following is a description.

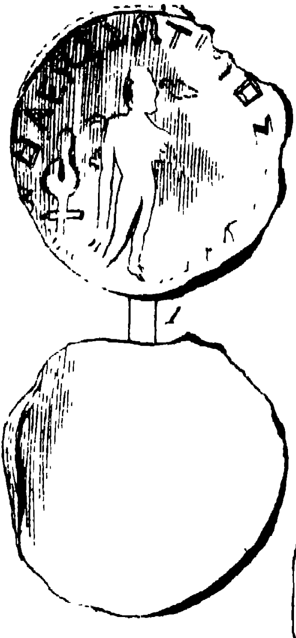
Obverse.—Head of the king, bare and diademed, to the right, with the chlamys on the shoulder. Legend, in fair Greek characters, ΒΑΣΙΛΕΩΣ ΣΩΤΗΡΟΣ ΕΡΜΑΙΟΥ. "(Coin) of the saviour king Hermœus."

Reverse.—The Olympian Jupiter seated on a high backed chair, half-turned to the left, and extending his right hand in a dignified manner. Legend in Bactrian characters—*Maharajasa dadatasa Ermayasa.* "(Coin) of the great king, the saviour, Hermœus."

No. 4.—A round copper coin of middle size, apparently in good preservation.

Obverse.—Figure of Abundance seated on a high backed chair, slightly turned to the left: her right hand raised, and the left holding a horn of Plenty. Legend ΒΑΣΙΛΕΩΣ ΒΑΣΙΛΕΩΝ ΜΕΓΑΛΟΥ ΑΖΟΥ. "(Coin) of the great king of kings, Azes."

Reverse.—Hercules standing, resting his left hand on his club,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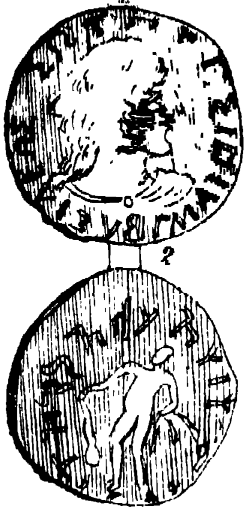
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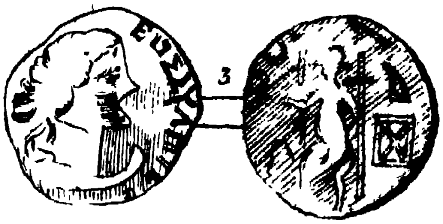
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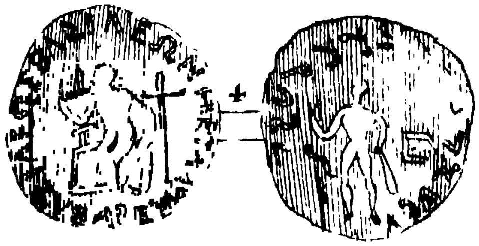
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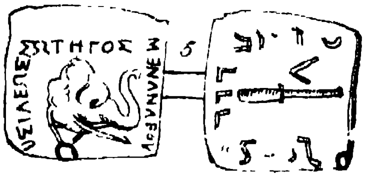
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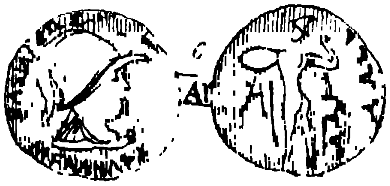
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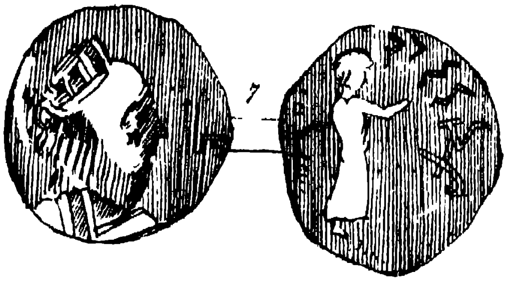
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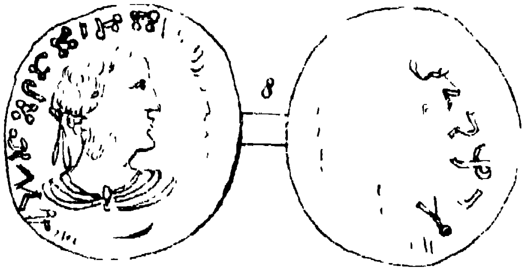
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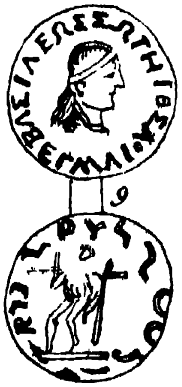
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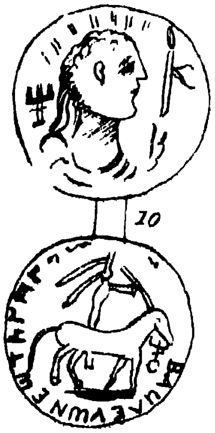
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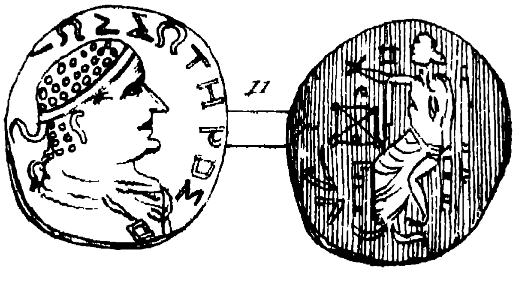
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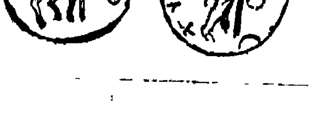
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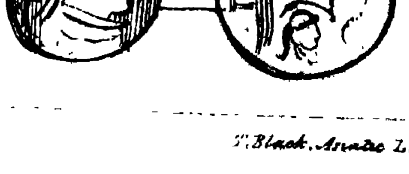
13

J. Black, Asiatic Lith. Press Cal.

with his right arm raised; in the field the two monograms already described on the other coin of Azes, No. 3, Plate 1. Legend in Bactrian characters—*Maharajasa Rajatirajasa mahatasa Azasa.* "(Coin) of the great king, the king of kings, the mighty Azes."

No. 5.—A square copper coin, of small size, and apparently in good preservation.

Obverse.—An elephant's head with the trunk turned up, to the right—under the neck a chain and bell. Legend on three sides ΒΑΣΙΛΕΩΣ ΣΩΤΗΡΟΣ ΜΕΝΑΝΔΡΟΥ. "(Coin) of the saviour king Menander."

Reverse.—The knotted club of Hercules erect (the sketch gives the reverse in the wrong position): in the field a monogram. Legend in Bactrian characters on three sides; *Maharajasa dadatasa Midanasa.* "(Coin) of the great king, the saviour Menander."

No. 6—A round silver coin of the size of a drachm, in middling preservation.

Obverse.—Head of the king helmeted to the right, the ends of a diadem appearing under the helmet; and the chlamys on the shoulder. Legend—ΒΑΣΙΛΕΩΣ ΣΩΤΗΡΟΣ ΜΕΝΑΝΔΡΟΥ. "(Coin) of the saviour king Menander."

Reverse.—The Thessalian Minerva, or Minerva Promachus, walking to the left, in the attitude of hurling a thunderbolt raised in her right hand, and holding before her on her left arm the Ægis, in the middle of which is Medusa's head: in the field a Grecian monogram. Legend in Bactrian characters—*Maharajasa dadatasa Midanasa.* "(Coin) of the great king, the saviour Menander."

No. 7.—A round copper coin of middle size, and in bad preservation. This piece, from its type and general appearance, and from the few Bactrian characters visible on the reverse, is undoubtedly a coin of Undopherres, similar to that which has already been described as No. 8 of Plate I.

No. 8.—A round copper coin of middle size, and in bad preservation. It is a piece of the king Kadphises, or Kadaphes, before described in the notice of Nos. 5, 6, and 7, of Plate I.

No. 9.—A round silver coin of the size of a drachm; of good make, and in beautiful preservation.

Obverse.—Head of the king to the right, bare and diademed, the ends of the diadem hanging at the back of the head. Legend—ΒΑΣΙΛΕΩΣΣ ΩΤΗΡΟΣ ΕΡΜΑΙΟΥ. "(Coin) of the saviour king Hermœus."

Reverse.—The Olympian Jupiter seated on a chair. Legend in Bactrian characters, *Maharajasa nandatasa Ermayasa.* "(Coin) of the great king, the saviour Hermœus. A beautiful specimen of this same coin was first published by M. Raoul-Rochette in the Journal des Savans for October, 1835.

No. 10.—A round copper piece, of middle size. This is a coin of the anonymous prince already described in the notice of No. 4, Plate I.

No. 11.—A round copper piece, of middle size, in bad preservation. This is, with some slight variations, another specimen of the same type of Hermœus as No. 3 of the present plate, already described.

Captain Hay's opinion that there must have been several princes of the name of Hermœus is likewise held by Mr. Masson, who has created three Hermœi, and located them in an imaginary seat at Nysa, which he says was near Jelalabad; but from what has been said in the notice of the coins of Eucratides we may learn to be cautious in creating several princes of the same name, from different types and mintages of coins of the same prince.

No. 12.—A round copper coin, of small size, and in very bad order. The only word legible in the Greek legend is ΣΩΤΗΡ "saviour," and I can make nothing of the marks occupying the usual place of the Bactrian legend: I incline however to attribute this coin to Azes, from its similarity in size, type, and general appearance, to many coins of that prince which I have seen.

No. 13.—A round silver coin of the size of a drachm. From the imperfect sketch of this coin. I am unable to come to any conclusion regarding it; I think however that it does not belong to any Bactrian prince; but from having no means of reference to the published coins of the Lysian, Cappadocian, and other kings, I cannot do more than record my belief that it is not a Bactrian coin: should it however prove to be so, it will be one of the most valuable acquisitions with which numismatology has been lately enriched.

ALEXANDER CUNNINGHAM.

Appendix to the notice of Forged Bactrian coins in No. 100.

Since writing the above notice, I have found in Capt. E. Conolly's Journal of Bactrian Numismatics (about to be published) the following description of a *gold* coin of Amyntas.

"Gold coin of square form, in the collection of Lady Sale, purchased at Peshawur, in all respects similar to the copper coin of the same king, except that the figures are reversed."

The square form of this piece—a form hitherto unknown in the gold coinage of Bactria, its perfect identity in shape, in size, and in type (only reversed) with the copper coin of this kind already known, added to its having the same sloping cut in the corner which existed in Col. Stacy's copper specimen; and also in the forged silver piece of General Allard; all prove, most satisfactorily to my mind, that this square gold coin of Amyntas is likewise a forgery.

The existence of the sloping cut would alone be to me a sufficient proof of spuriousness of this new piece; the ignorant forger having been unable to complete the legend of the coin on either side. The circumstance of its having been purchased at Peshawur, where General Allard resided so long, and from whence he dispatched to France the drawing of the forged silver coin already mentioned, seems to prove that this gold piece was the production of the same hand that manufactured the spurious silver coin, purchased by General Allard, the type having been reversed with the intention of selling the new piece to General Allard, and of preventing any suspicion of its genuineness arising in the mind of the General, who had purchased the silver piece of the same type, from the same person.

The fact of the type having been reversed, shows an advance in the art of forgery, which should tend to make our countrymen still more cautious in the purchase of Bactrian coins; and more particularly of pieces in the other metals, which reproduce types already known in copper.

In the same paper Captain E. Conolly mentions a tetradrachm of Euthydemus belonging to himself, as being "*evidently cast.*"

There can be no doubt therefore that this "*evidently cast*" tetradrachm of Euthydemus is a spurious piece, forged, with many others, to satisfy the demands of our countrymen in Afghanistan, whose commendable zeal leads them to give higher prices for these coins than prudence warrants; and I fear that many will find their collections diminish in value as their numismatic knowledge increases, and enables them to detect the spurious coins they have purchased.

The goldsmiths in northern Afghanistan are, I believe, chiefly, if not all, Hindoos, who have been accustomed from their youth to the casting of gold and silver into an infinity of small forms, and to the making casts of old coins, with figures of their Deities, to be worn as charms round the neck.

I have myself seen a dozen brass casts from two different gold coins of Govinda Chundra Deva of Kanouj; one cast was remarkable in having no inscription side, two moulds of the obverse having been placed together to form a piece with the seated figure Durga on each side. These casts were made openly when deception was no object, but when 100 rupees are asked for a tetradrachm of Antimachus, and the same sum for a tetradrachm of Euthydemus, we may be certain that the same man, who would make a few casts from an ancient coin for the sake of the small profit to be obtained from one or two native customers, will now multiply casts of the genuine coins that may fall into their hands for the sake of the high prices that are given for all coins of Bactrian appearance by many of our countrymen, whose numismatic experience is not yet sufficient to distinguish a true coin from a forged one.

The forgery of coins is no novelty in India, for the high prices given for the Zodiac coins of Jehariger, soon excited the cupidity of forgers, who produced the whole of the twelve signs both in gold and in silver—no complete silver set of genuine Zodiac coins has, so far as I have been able to learn, yet been obtained.

In 1837 I saw Mr. Laing's cabinet containing nine silver Zodiacal coins, *all* of which were forgeries, stamped by a die imitated from genuine gold coins, which differ both in type and in inscription from the silver coins;—and which, joined to their hardness and crudeness of outline, are the best tests for distinguishing the forged coins from the true ones.

ALEXANDER CUNNINGHAM.

Note on an inscription from Oodeypore near Sàgur.

This inscription sent by Capt. Burt (Eng.) to our late Secretary, has been already noticed in the Journal, though but casually (As. Soc. Jour. p. 1056, vol. VII.) Capt. Burt having again submitted it to the Society through me, the translation is now published with the original in Devnagree, as I have not thought it necessary to have a lithograph prepared of the facsimile, the character being well known. The errors of grammar, and incorrectness of expression occurring in the inscription are so gross, that the pundit Kamalakanta Vidyalanka declined helping me in the publication of it unless I permitted him to interline his emendations, which, as will be seen, has been done accordingly. The date is S. V. 1116, or 918 of Salivahána, or 446 of Oodyadhitya, thus establishing the era of the latter monarch, as has been already noted by Mr. H. T. Prinsep, at about A. D. 618. A misapprehension occurred however when the former notice was published, as to the name of the reigning raja, the recorder of the inscription; and especially as this record introduces us to names hitherto unknown among the rulers of Malwa, I have thought it expedient to publish Kamalakanta's acknowledgment of his error in having taken one of the attributive epithets of the reigning raja, on a hasty perusal, for his actual name. Our present raja has stood hitherto recorded as *Punya Pala,* in place of his proper appellation: had not circumstances induced the necessity of a cursory notice, the oversight would have been of course corrected as soon as made.

I have in vain endeavoured to trace the *Pavara* dynasty in ordinary books of reference; the names of the chiefs therefore recorded on this tablet are of course unknown to history. Of the three* generations noted on this inscription, one only in the person of the reigning raja is recorded as in possession of its regal authority, and he is represented as having regained the heritage of his fathers, though the fact of their ejection from it is, for obvious reasons, but dubiously alluded to. According to Abool Fuzl (Useful Tables, p. 107) *Jitpal Chohan* recovered Malwa from *Kemal-ood-deen,* whom he murdered A. D. 1069. Conquered in 866, Malwa would appear from the slight notice afforded by historians during the period intervening between the years of its invasion, and the accession of the so-called *Jitpal Chohan,* to have owned but a doubtful submission to its Islamite oppressors. Reduced as we are to the meagre chronicles of historians, who belonged to the invading and aggressive party, we cannot expect to find the record of their defeats kept with any thing approaching to general accuracy. Of the two great authorities, Ferishta and Abool Fuzl, the former makes no mention of the early conquests of the Mussulmans towards the Nurbudha, while the latter merely enables us to conclude, that the country after having been overrun, was either left for years together unvisited by the conquerors, or was confided to the charge, perhaps, of a Hindoo tributary chief. Let what may have been the case, there is little doubt but that subsequent to the Mussulman invasion, the country must have been a prey to disorder, the efforts of the Mussulmans on the one hand striving to reap the fruits of their conquest, and on the other, of the Hindoos endeavouring to re-establish the power of the ancient dynasties, tending equally to destroy the semblance of a social system, and set at nought the efforts of the historian, did he attempt to delineate the principal events of times so troubled. As regards the certain record before us, I will merely observe that the coincidence (within nine years) of the accession of the so-called *Jitpal Chohan* to the throne of Malwa, and the exertion of regal authority in that country by the raja who in the inscription is represented as having recovered his dominions, is a valuable fact. The subsequent history of the Hindoo princes of Malwa gives us instances of scions of the royal house returning (A. D. 1192) after a long sojourn in a distant land (Kamroop), and achieving by, it would appear, their personal prowess, a restoration of their authority over their patrimonial possessions. This suffices to prove the little security which Mussulman ascendancy could have obtained in Malwa after the lapse of even more than a century from the date of our inscription; the natural inference is, that the dispossession of *Kemal-ood-deen* might have been at that earlier period still more easily effected by one who in recording his deeds, proves his hereditary right by mention of his immediate ancestors, though unable to say more of them than that, landless as they were, he won back his sovereignty in right of his descent from them. The total dissimilarity of the name of the *Chohan* Raja of A. D. 1069, and of the scion of the *Pavara* dynasty, A. D. 1060, recorded, the former by Abool Fuzl, the latter by himself, as having recovered his possessions in Malwa, is not on reflection so startling as it might at first sight appear to be, when we remember the incorrectness with which indigenous names are usually given by foreign writers, and the practice among Hindoo princes of assuming a titular appellation on accession to their throne. The coincidence of date is of course the only point of real importance.

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* I do not include of course the fourth generation, adolescent sons of the reigning Raja

The incorrectness of the Sanscrit in which the inscription is written, I take as a strong indication of the state of the country at the time of its composition. Fatigued by years of war and desolation, and oppressed by the fanatic violence of the Mussulmans, the country had so ceased to afford encouragement to the cultivation of its indigenous literature, that when a son of its ancient race regained for a time his authority, there remained not a man of letters able to celebrate his restoration in fitting language.

Literal Translation. By Pundit SARODHA PRUSHAD.

May success attend this salutation to Ganesha, the Supreme Deity.

Hail to the husband of Parvati (Siva) the source of prosperity, who in each of his five faces is possessed of three ears, ten hands, two vehicles (the bull and the lion), the half moon on his forehead, and Ganga on his head. His person besmeared with ashes is adorned with serpents, and his throat stained blue. Half his body is rendered beautiful by Haimavati (his wife), on whose feet are golden anklets* shining with jewels.

There was a fortunate Raja named *Suravira,* who was descended from the *Pávara* line, and was himself very learned, pious, liberal, valiant, and possessed of both *his* own and his enemy's armies. He had a son named Gondala, who was renowned—very liberal, receptacle of all noble qualities, devoted to the gods, enjoyer (of happiness), judicious, conqueror of his enemies, and famous for his own deeds.

His son, named *Arevalamathana,* who was the protector of all, and famous, and whose fame is white like the moon beams, went to *Malava* and recovered his former kingdom of *Madhyadesha.* which had formerly been governed by his ancestors, and was usurped by inimical Rajahs. There he performed many religious ceremonies, caused tanks to be made, which are filled with water, and a temple of *Siva* to be built.

He erected many divine temples, and granted *Dhányas*† and gold to the Brahmans, and was succeeded by his son Udáyaditya the king, who was equal to his father in power.

There further (he *Arevalamathana*) who was himself an ascetic and renowned for his fame, offered sacrifices, and performed many virtuous deeds, and caused this sacred and divine temple to be erected, which is perfect and best in its kind within the whole *Jam-búdwepa,* in the year of the Vekramáditya samvat 1116, corresponding with the Saka year 981, in the year Kaliyuga 4160, and in the same of Udayáditya 446.

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* An ornamental effect.

† Corn or lands productive of corn

During this time all his subjects avoided the usages of Kaliyuga, and paid homage to all the sacred temples, and *Jam-búdwepa* itself was the dwelling place of Bhagavati.

His son *Sálivâhana* who was distinguished by all the marks (of prosperity,) has agreeably to the customary observances of kings, cherished virtue, and furnished all the temples with the furniture of worship. He was devoted to the worship of his tutelary gods, persevering, hospitality, and firm in mind. He acquired virtue and wealth, gratified his passions, and performed the religious acts in the manner as declared in *Vedas*.

Bhava, the son of Rama, who was known by the name of *Dhurmadhyaksha*, caused this eulogy to be inscribed on the Friday, the thirteenth day of the moon's light, fortnight of the month of Chaitra, when the sun was in the sign Pisces

This eulogy, which is placed on the walls of this temple, and is durable till the *sun* and the moon will endure, was composed by *Apajáyi*, a Brahmana, who was studious in the Vedas and the arts of singing, and was dear to kine as well as to Brahmans, a superior Pundit in astronomy, and respected by all.

It was expected that so long as the *earth*, the sun, (Swaha) the wife of fire, the Meru (the golden mountain) and the rivers will endure, so long from generation to generation, it will show the extent of his education in Shastras

If any previously point out where my errors are, I shall be pleased with him.

Success! This inscription was engraved by *Súvala*, the son of Santala Deva, and the grandson of Setasya. He was by caste Sutradhara, and the meanest and most faithful and obedient servant of the king.

On Bos Gaurus.—*By* DR. SPILSBURY.

[Extract of a letter from Dr Spilsbury (with plate) to Prof. W B O'Shaughnessy]

"Ouseley writes me that he has sent you the skull and horns of a wild bull; now I send you a frontal and occipital view of a bovine skull, and part of horn (similar animal as delineated in November Journal) both done to the same scale; the upper one shews well the breadth and flatness of the occiput, and the whole being clear of matrix, a good notion is obtained of the size of the horn, of the teeth, breadth of skull, &c. You have a good view in the former plate.* Now I should like to have a cognoscent account of this animal. I have perused Dr. Evans' paper on Bos Gaurus; Pearson on Gour, and Gyal; and Hodgson on the Bibos, all in vol. VI. for 1837, of the Asiatic Journal, without being able to come to a conclusion as to which the fossil belongs, and it is equally distinguished from the fossil Buffalo. The horn of the latter is straight, also great breadth of forehead, as shewn in the contrasted specimens No. 3 and 9 with Nos. 7, and 8, in the November Journal. Along with the fossil ones, I send you a drawing of a recent head of the wild bull, as found in our wilds, for comparison with the Sirgorjals. This specimen has the crest, as shewn in p. 16, vol. VI. but I do not think so large, but the age of the animal may alter it; see p. 18, same vol. Hardwicke's horn and forehead are delineated, which does not come so near the appearance of ours as p. 16 The fossil has no crest, and the horns are quite different; so I submit them to the cognoscent, and shall be glad to see your remarks, or those of some one conversant with Zoology upon them. I have another batch nearly ready for transportation, which will be under weigh in due season."

* * *

Note.—I regret exceedingly that the departure of Dr. Thomson, our late Curator, prevented my having the pleasure of submitting the above extract, and the accompanying plates with remarks upon them, with which he had promised to furnish me. I trust that Dr. Spilsbury's discovery may not pass uncommented upon, and shall have great satisfaction in giving early publication to the further specimens he promises to oblige us with.

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* November Journal, 1839

Proceedings of the Asiatic Society.

(Wednesday Evening, 5th August, 1840.*)*

The Honorable H. T. PRINSEP, Esq., Vice-President, in the chair.

The Proceedings of the last Meeting were read

J. J. TORRENS, Esq., Rev. A. WALLIS, Mr. A. CAMPBELL, Dr. THOMSON, Major POTTINGER, and Baboo RAMGOPAUL GHOSE, proposed at the last Meeting, were ballotted for, and duly erected members of the Society.

Major RAWLINSON was proposed by Lieut. C. B. CONOLLY, seconded by the Officiating Secretary.

Read letters from Messrs. EDWARD BALFOUR, Secretary to the Royal College of Surgeons, and JOHN WASHINGTON, Secretary to the Geographical Society of London, acknowledging receipt of the 2nd part of the 20th vol. of the Asiatic Researches.

Library.

The following books were presented.—

Transactions of the Geological Society of London, vol. 5, pt. 2nd. second series.—*By the Society.*

Madras Journal of Literature and Science, vol. 26.—*By the Madras Literary Society.*

Transits as observed, and Calculation of the Apparent Right Ascensions 1831.—*By the Lords Commissioners of the Admiralty.*

Zenith Distances observed with the Mural Circle, and Calculation of Geocentric South Polar distances, 1836, 37.—*By ditto.*

Bessel's Refraction Tables—*By ditto.*

The Oriental Christian Spectator, No. 6. vol. 1—*By the Editor.*

General Anniversary Meeting of the Royal Society of Northern Antiquaries at Copenhagen; in French 2 copies; in English and French, 3 copies; and in English, French, Danish, &c. 2 copies, 7 Nos.—*By the Society.*

Memoires de la Societe Royale des Antiques du Nord, 1836-37.—*By ditto.*

Annaler for Nordisk Oldkyndighed—*By ditto.*

Bulletin de la Societe de Geographi, vol. 11th, 2d series—*By the Geographical Society of Paris.*

Journal Asiatique, Vol. 6th 3d Series Nos. 34, 35, and 36, from October to December; 1838, Vol. 7th Nos. 37—42; January to June 1839, Vol. 8th Nos. 43—47, July to November 1839.—*By the Asiatic Society of Paris.*

L'Indicateur des Poids et Mesures Metriques instructions par M. Martin Victor Paquet.—*By the author.*

Weber die indirchen Verwandts chaften in Aegypischen.—*By Professor Othinar Frank.*

Gelelorte Auzeigen.—*By ditto*

The following books were purchased:—

Naturalist's Library, Vol. 6th.

Yarrell's History of British Birds, part 17.

Annals of Natural History, No. 28.

Literary and Antiquities.

Read a letter from Captain McLeod, correcting an error in the position of the coal fields in Tenasserim as published in the map of the Coal Committee in the Society's last number of the Journal.

The Officiating Secretary then laid before the Meeting a curious *pootee* (religious work) which he received from a Jain priest, mentioned in the last number of the Journal. The MSS. was dated 1508 sumbut, being about 400 years old, and was produced by the priest in support of his assertion that one of Lieut. Conolly's gems, mentioned in the above number of the Journal, gave the heads of a Buddhist teacher bearded, and with a cloth over the mouth. A figure, illuminated in the style of the old missals, was given in this Manuscript in position to support the Jotee's argument. He also attempted the explanation of the supposed monogram (No. 1. pl. I. As. Soc. Jour. No. 98) by stating that it represented the Seuthi Sthapani, or stand for supporting sacred works in use among Buddhists. Captain McLeod inclined to consider the explanation a very fair conjecture; but the Officiating Secretary stated that the Jotee's interpretation, as well as the result of further investigation on the other gems were not published in this number, as it was wished to invite further inquiry, and also to accompany them with corrected copies of the ancient character on No. 6 gem, which had been faultily lithographed.

The Officiating Secretary called the attention of the Meeting to a paper containing Memoranda by Mr. Piddington, regarding the Law of Storms. A portion of this paper was read to the Meeting. Mr. Piddington, mentioned that he had met with difficulties in procuring the information he required, to enable him to carry out his object, from the unwillingness of some, and the want of time, &c. in the commanders of vessels, to give extracts of their logs regarding the bad weather they might have experienced on their passage. On this account Mr. Piddington wished the Society to apply to Government for the issuing of some order, making it compulsory on all commanders of vessels giving the requisite information on their entering port. Mr. Prinsep thought that Government would not adopt any compulsory measures, as commanders of vessels were only answerable to their owners for their log books; but he doubted not that they would use every persuasive means, and make the strongest appeals to their feelings for the desired information, and even if it would be of use, a lithographed letter of thanks should be given to all who afford the required information, on their leaving port. Mr. Piddington desired it to be understood, that only those parts of their logs as related expressly to the state of the few days bad weather which vessels might have experienced, and the situation of the ship at the time, were all that were solicited. The Officiating Secretary said that he would throw all that had been urged into the form of a letter to Government, and solicit it to make an appeal to Officers and Commanders of vessels that every facility might be given to Mr. Piddington, for the accomplishment of his object.[*]

A palm leaf Manuscript on Burmese Cosmogony, was exhibited at the Meeting by Captain McLeod, who informed them that the Manuscript in question is the property of Dr. Bayfield, and that he would take an early opportunity of presenting the Society with a similar work on the arrival of his books.

Read a communication from Mr. Campbell, regarding the Lepchas.

Museum.

Read a letter from Mrs. **Denham**, forwarding one of the balustrades of the old London bridge.

A collection of snakes preserved in spirits was presented by W. **Porteous**, Esq.

The Officiating Secretary regretted to inform the Meeting that the Society has been deprived of the services of their Curator Dr. T. **Thomson**, on account of his being ordered to proceed to the Upper Provinces. During the short time Dr. **Thomson**, undertook the duties of Curator, he rearranged the specimens of natural history, &c. in the Society's Rooms, and was of very material service in other departments of the Museum.

JOURNAL

OF THE

ASIATIC SOCIETY.

Journal of a trip through Kunawur, Hungrung, and Spiti, undertaken in the year 1838, under the patronage of the Asiatic Society of Bengal, for the purpose of determining the geological formation of those districts.—By THOMAS HUTTON, *Lieut., 37th Regt. N. I., Assistant Surveyor to the Agra Division.*

PART III.

On the 3rd July I retraced my steps to Hungo, and found a very different aspect to that I had witnessed in the beginning of June; then the snow was lying deep on all the surrounding hills, and within a few yards of the village itself. The yellow flowering furze was the only plant that seemed hardy enough to face the chilling waste of snows that spread around. Now, the wintery sheet had melted all away, except towards the summits of the mountains, the furze had lost its golden flowers—and in their place were others of various kinds scattered through the fields or on the mountain's side. The loud sharp whistle of the bhair was hushed, and had given place to the shrill chirp of the cricket and the grasshopper. A tinge of green was seen to pervade each mountain side, and the cultivation round every village was of the brightest and richest hue. In short, the glad smile of summer shone around at every step, and the chill white garment of the winter was fast receding to its farthest limits. How marked a contrast, was produced in one short month! Had I returned by any other route, I should undoubtedly have been tempted to describe these hills as bare and unproductive of ought, save furze. How cautious therefore should the traveller be, lest noting down too hastily his first impressions, he be lead to pronounce that country barren, which at another and more favourable season, he would find rich in plants and cultivation. Such indeed, I am told, has been the case at this very mountain of Hungrung; M. Jacquemont, who crossed it in summer, when all was "blythe and gay," having passed some severe critical remarks on Messrs. Herbert and P. Gerard, who crossing it some years previously in autumn, when all the beauty of the scene was over, had pronounced it wanting in botanical treasures. Both parties were somewhat hasty, the one seeming to think the district always rich in flowers, and the other, that it never was so; neither seem to have taken into consideration the effects to be expected from change of seasons, and truly when I first crossed the Pass in June, I was inclined to adopt an equally hasty conclusion; for the very look of the place, so still and lonely, so bare and sad, seemed to strike a chill upon me, and to depress my spirits, so that on my return, the beauty that every where met the eye appeared to have been conjured up by magic, or like the sudden and well managed shifting of a winter scene, to one of smiling summer.

From Hungo we ascended to the Hungrung Pass, which is the boundary between Kunawur and the Tartars of "*Hungrung within.*" In place of the cold sheet of snows that was every where spread around when I last travelled over this ground, the *Chinese furze,* the wild shalot, yellow potentilla, rhubarb, and several other plants now enriched the scene, and the delicate flowers of "*Saxifraga ciliata,*" were abundant.

On recrossing the Hungrung Pass, I once more entered Kunawur, and bid a long adieu to Tartary and Tartars.

I am far from thinking, with the late Dr. Gerard, that "the Tartars are the finest fellows I ever met with,"—nor can I give them the preference over the Kunawurrees. That they are frank and free enough in their manner, I allow; but I often found them too much so, and so troublesomely curious and inquisitive were they, that it was sometimes only by threatening them with the stick, that I could keep my tent free from them. As to their honesty, it appeared to me very like the honour which is said to exist among thieves;

they are true and honest among themselves, *because* they find it mutually their interest to be so, in a country where each is necessarily more or less dependent on his neighbour for assistance;—but in their dealings with a stranger, they do not hesitate to lie and cheat as much as any of the people of the plains of India.

Of this I had several good proofs while among them, one instance of which was practised at Dunkur. Being sadly in want of provisions for my people, I had, with much difficulty, at length prevailed upon the killadar of the fort to sell me ten rupees worth of wheaten flour. The money was paid in advance, and it was agreed that I should march to Leedung, and leave behind me three or four of my people to receive and bring it on the next morning. Accordingly I proceeded to the fossil site, and halting there one day, we consumed all the provisions we had with us. Instead of furnishing the flour by noon on the stipulated day, it was not produced and delivered over to my people until late in the dusk of the evening, when it was too dark to see its quality, which was of course exactly the aim of the seller; for on its arrival in my camp the next day, it proved to be instead of wheat, for which I had paid a higher price than it was selling for among themselves, coarse barley meal, of the worst description, and which even the coolies refused to eat. Luckily we purchased enough at Leedung for the day's consumption. This was so evident an endeavour to take me in, and pocket the difference in price, by giving me bad barley instead of good wheat, that I instantly returned it, and demanded the strict fulfilment of the agreement, under pain of helping myself. My demand was acceded to immediately, as even then I only got seven seers for the rupee, while among themselves it was selling from ten to twelve seers.

Another instance of their roguery which annoyed me excessively, occurred during the short march from Nabo to Leeo. I had purchased an enormous pair of horns with the skull of a shawl goat, and had placed them on a kiltah, or basket, containing specimens of rocks and minerals. On arriving at Leeo the horns had disappeared, and all inquiry to discover the thief was fruitless: they now no doubt grace some pile dedicated to their favourite Devi. This theft however, was the least of the evil, for the rascally Tartar, thinking his load too heavy, had thrown away a number of valuable rock specimens also. So much for *Tartar morals.*

If coolies are required from a village in Spiti, no man will move without first receiving his four annas, and it is then by no means improbable, that he will set down his load about half way, and leave you in the lurch, or he will leave part of it behind, and carry on the rest, telling you very coolly that it is too heavy, although perhaps the whole does not amount to twenty seers.

Sometimes again, no man will stir even if you offer him double pay and a light load, for fear the Mookiah of the village, who happens to be absent, should feel displeased at his giving you assistance, and in this case the load must be left behind until you can send back a man for it from the next stage. If asked whether they will sell you a sheep or goat, flour or birmore (woollen stuff,) they invariably tell you there is no such thing to be had in the village, either because the season has been bad and the crops have failed, or because somebody has robbed them; while at the same time they have plenty of every one of the articles demanded; but their fears that the traveller will take what he fancies, without giving them payment for the same, at once prompts them to tell a lie as the safest mode of escape. When once assured of payment, however, they bring their goods forward, although at a most exhorbitant price, thinking, no doubt, that as a paying customer is seldom met with, the best way is to make the most of him when he does appear.

It is very true that all this may originate from the mode in which they are treated by their governors, and that if they were more happily circumstanced they would behave otherwise; but with the causes of their behaviour, I have nothing to do, and I therefore speak of the Tartar as I found him.

These remarks however are much more applicable to the Tartars of Spiti than to those of Bussaher, or as they term themselves by way of distinction, both from the Tartars of other districts and from the Kunawurrees, "Tartars of Hungrung within."

The Tartars of Hungrung are subject to Bussaher; those of Spiti to Lädāk; and the Chinese Tartars to China; these although essentially the same people, have nevertheless their peculiarities and distinctions both in dress, and language.

The dress of the Tartars consists in general of a strong and thick birmore, which is manufactured by themselves from the wool of the Thibetan sheep. The coat or body dress fits somewhat tightly over the breast and shoulders, and has long sleeves ; it descends as far as the knees, but is not plaited like the dress of Kunawur ; they wear also large loose trowsers with the ends tucked up, and tied at the knee, causing them to fall in large bags nearly to the ankle. The foot is encased in a strong, and clumsily made shoe of leather, to which is attached a woollen stocking reaching to the knee, where it is confined by a garter beneath the trowsers.

This stocking is generally of two colours, the lower half being red or yellow, and the upper half blue. This is the dress of a decently clad person, but in general they are seen clothed in rags and tatters of the filthiest kind, their stockings patched with yellow, red, blue, and every colour of the rainbow, yet bearing no more resemblance to *Tartars*—to which the fanciful imagination of a former traveller has likened them—than do the patched, and parti-coloured rags of an English beggar, to the neatly arranged colours of a Highland plaid.

To the above dress is often added a red linen sash, in which is stuck a knife, and a steel tobacco pipe, called a "gungsah"; it is sometimes inlaid with silver, and rudely worked, and is manufactured in Spiti from the iron which is imported from the lower hills. The bowl for the tobacco, and the *tout en semble* have very much the form of an English tobacco pipe. The Chinese Tartars have them made of brass, and neatly ornamented ; a small leathern purse in which is kept the tobacco in a dried state, and a steel, or chuckmuch for striking a light, are also suspended from the waist by a string, or sometimes a brass chain.

Round the neck is worn a necklace of pieces of amber and coloured stones, and many of the devout have also a long string of wooden beads, which are counted over as they hum an invocation to their deity.

In the form of head dress there is some difference; that of Hungrung being usually a close fitting cap, with a flap to protect the ears and nape of the neck, and which in the summer is turned up. The Tartars of Spiti wear the same, as also a kind of bag-shaped cap, the upper part of which flaps over one side of the face; this last is also worn in Ludak.

The Chinese Tartars again are usually bare headed, with the hair in front cut close, or gathered back into a long plaited tail, which falls down behind.

The women are certainly, without exception, the ugliest I ever beheld, and usually vie with the men in filthiness of dress and person. They are fond of red garments, which consist of a woollen petticoat reaching to a little below the knee, with trowsers and boots similar to those of the men ; a blanket is also usually thrown across the shoulders, and fastened in front upon the breast with a large steel needle or piece of string.

In Kunawur a kind of brooch made of brass, and called "peechook," is used instead of the needle, and looks better.

Some wear a cap like the men, but generally the hair is thrown off the forehead, plaited into numerous long tails, and hangs down the back, where it is kept from flying about in the wind by a girdle, which confines it to the waist ; this is sometimes of leather, and is studded over with pieces of amber and coloured stones ; another similar strap of leather is also worn on the head, hanging from the forehead over the crown and down the back, this too is studded like the former with stones or glass of different colours, and is used both as an ornament and as a means of keeping down the back hair by its weight.

When kept neat and clean, as some of them are, this style of head dress has a very pleasing effect.

Both men and women have very low, flat foreheads, small eyes, broad flat faces, and high cheek bones, which together with a cloak of goat's skins worn by the women with the hair inwards, gives to their square short figures very much the appearance of the pictures we see of the Esquimaux.

To the Tartars of Hungrung and Spiti, feelings of modesty appear to be totally unknown, or if known, they are disregarded. Men and women too, may sometimes be seen unblushingly bathing together in the same stream, in a state of nakedness.

The Tartars of Spiti are stout made, athletic looking fellows, but they are poor spiritless cowards, forming in this respect, if report speaks truth, a marked contrast to the tribes of Chinese Tartary, who are represented as a bold and fearless people, though of a mild and gentle disposition.

When the Rajah of Ludak was lately expelled by the troops of Runjeet Singh, and forced to seek shelter in Spiti, the Tartars assembled to the number of 400 men, and posted themselves at a gorge, in order to check the advance of the Seiks, who were reported to have entered the district. The position they had chosen was one where a handful of resolute men might have held an army at bay, and they valiantly looked forward to the defeat of their enemies.

When the foremost of the Seiks appeared, a single matchlock was discharged, doubtless with the intent to strike a panic into the advancing foe, but it had unfortunately quite a contrary and unforeseen effect, for no sooner was the report heard, than, without stopping to witness the result of the shot, off scampered the Tartars, as hard as they could scramble over the hills, and the enemy, who amounted after all to no more than *six* men, marched through the district and compelled the Rajah, (who fled on hearing of the result of the *battle*,) to seek protection in Bussaher.

When I asked the Tartars how they could be such cowards as to run from six men, they replied that they did not know at the time that their enemies were so *few in number*, or they would have fought them!!

Throughout the districts of Hungrung and Spiti, as also in the upper parts of Kunawur, where the Bhuddist religion prevails, oblong piles of stones are constantly met with by the road side, and the custom is always to pass, so as to leave them on the right hand; in the observance of this the Tartars are very scrupulous. On these piles are numerous slabs of various sizes, with inscriptions engraven in the characters of Thibet by the Lamas, who appear to be the only people who can read them. These inscriptions "hieroglyphics," as Dr. Gerard has termed them, are usually the sentence "*Oom manee paimee hoong*," repeated two or three times on the same slab; others bear longer sentences from their sacred books, and all are analogous to the tombstones of our own country. When a person dies the body is burned to ashes, and intimation being given to the Lamas or priests, a stone is prepared and engraven with some sacred sentence, and when ready to be deposited on the pile of stones, or "manee" as it is termed, the friends and relations of the deceased person assemble, and repairing to the spot, walk several times round the manee, repeating the sentence "*Oom manee paimee hoong,*" as fast as they can, in a sing-song voice. After this the Lama deposits the stone, and the party retires.

The slabs placed on these piles are sometimes very creditably carved; at others quite the reverse, being mere thin slabs of slate, with the letters scratched on the surface.

The word "manee" is also applied to a small brass barrel-shaped instrument, about two or three inches long, which is made to revolve round an axis, one end of which is held in the hand; the oftener this is made to revolve during the day, the greater chance the person has of going to heaven. It is laid aside while the possessor is employed in laborious work, or any occupation requiring the assistance of both hands, but the instant that task is accomplished, the whirling of the manee is resumed. In it are enclosed a few scraps of paper, inscribed by the Lamas with some sacred sentences.

The district of Spiti is said to contain about forty villages, and four hundred families; so that if we allow six and a half persons as an average to each family, which will certainly be the utmost, it will furnish a population of about two thousand six hundred souls. In point of scenery and general appearance, the features of the country throughout are far different, and less attractive than the hills of Kunawur.

Through the latter country we see the mountains towering aloft in ragged and shattered pinnacles, bearing full witness to the mighty and irresistible nature of the agency which has torn their firm strata asunder, and hurled them aloft in spires of various forms. Such are the usual characters of primary formations in every country.

The sides of the mountains are there clothed often to their very crests with forests of oak and pines, cheering thet raveller, and robbing the gigantic and snow-clad mountains of their terrors. Villages and cultivation are met with at no great distance from each other; and all bespeaks the presence of industry and plenty.

Throughout the Tartar districts of Hungrung and Spiti, all wears a different aspect,—a dull and melancholy air of desolate sadness, seems to pervade the scene;—the mountains, less bold and rugged, have a blackened and charred appearance, caused by the de-composing strata of clay-slates and shales in which they abound. These hills are of the secondary formation, and their outline more gradual and rounded, wants that air of majesty and grandeur which the primary class possesses. Here are no trees, no forests to take off the sombre aspect of the view,—but a bare and barren waste of crumbling soils meet the eye at every turn. Broad and sterile tracts of alluvial deposits are also traversed in the bed of the valleys, now high above the river's course, and which seem from their appearance to invite the hand of industry to cultivate the soil, yet days may be passed without a village being met with to gladden the cold and dreary solitude.

If even a village be found, no welcome is seen in the eyes of the half scared inhabitants, who, fearful lest their stores should be taken from them without payment, either deny that they possess any thing at all, or abandon their huts at the approach of the intruder. When assured that no force will be used towards them, they become, on the other hand, such harpies, that it is impossible to procure the commonest article without paying a most exhorbitant price for it. A great inconvenience arises from the want of a copper currency. Throughout the districts of Hungrung and Spiti, as far as I travelled, nothing could induce the people to receive pice; they have no use for them among themselves, as every thing is on a system of barter,—wool for grain, woollen stuffs for salt, tobacco, &c.,—but no money generally speaking passes from hand to hand among them. The only time therefore when they find the use of money is at the annual fair held at Rampore in the month of November, at which season they purchase the various articles and supplies which are to last them till the same time in the ensuing year,— or which are to be taken up into the higher and remoter hills. In exchange for these things, which consist of goor, tobacco, iron, grain, &c. they give to the dealers, biangee* wool, pushm, sooklant, birmore, chowrees, blankets, borax, &c.

Even here therefore they pursue a system of barter with the people of the lower hills and plains, and their money is only useful when they wish to purchase some trifling articles, such as beads, looking glasses, &c., from those to whom their merchandise would be useless.

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* A term applied to Thibet sheep wool.

In Spiti the only coins which are received, are the old Culdar rupees, and a small silver money of Ludak, of four annas in value, called a "Powlee."

Thus, as no pice are current, the value in full must either be taken for your money, or you pay four annas for that which is worth but one. The way my people used to manage, was to club together to take a certain quantity of anything, so as to have the full value of their money; but I was constantly obliged to pay four annas for the cup of milk for my breakfast, or drink my tea without it.

In Hungrung, which is under the government of the Bussaher Raja, another silver coin, worth two annas, and also sometimes termed a "Powlee," though more properly a "Timashé,"* is current, as it is likewise in Kunawur. Still, except in Kunawur, no pice are received, and the people say they have no use for them. Formerly there existed a *brass* currency in Hungrung and Kunawur, but it has long since fallen into disuse. The inconvenience, however, is not so great in Hungrung, because the Powlee is of only half the value of the Ludak coin. Silver money is always readily received, because it can be applied to various purposes, either in paying the rents, &c. to their governments, or by melting down into ornaments.

Lead is found in the neighbourhood of Pokh, but in such small quantities that no mines are worked, and it is only when a supply of balls are required, that any one will take the trouble of going in search of it.

The district of Spiti may be said to produce no trees at all, except a few poplars and willows planted round the villages, to serve for economical purposes when required, and which being all planted by the hand of man cannot properly be admitted into a list of the productions of the country, or suffered to be at all characteristic. No fruits of any kind are seen, neither grapes, peaches, apricot, apples, walnuts, nor in fact any of those fruits which are so abundant in Kunawur. Of shrubs, the "Himalayan" and "Chinese fruze"† are the most abundant, and form the chief fuel of the people; these are cut and dried in the summer months, and stored up on the flat roofs of their houses, where they form thick stacks against the rigors of the winter season. Besides the furze there are few shrubs met with, save the dog-rose, and a creeping plant called "Kábráh," which spreads along the ground, bearing a large and beautiful white flower. The rose is sometimes cut and stored up also with the furze for fuel. Growing wild over the almost barren hills, amidst the loose and crumbling soils, is a small plant bearing a pea-shaped flower, of a pale rose colour, the leaves of which when bruised are thought by the shepherds to be efficacious in the curing of maggots in sheep, and which when applied to the infected part, is said to cause the insects to drop out; it is called "Taksha."

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* Is this a corruption of "*Timour Shah-i*?"

† Astralagus.

A traveller journeying through this district in the summer months, would fancy, from the few sheep and cattle seen about the villages, that flocks and herds were wanting; the fact however is far otherwise. In June when I passed up and down the valley of the Spiti, I scarcely saw either a sheep or a goat, excepting the flocks laden with grain, and which did not belong to the district. Of cows there were a few, but yakchas* none. This is owing to the custom which prevails, not only here but in Hungrung and Kunawur also, of sending the flocks to the higher regions, where, when the snows have melted away, a rich vegetation soon springs up, affording a pasture that the lower tracts cannot produce. Grasses, potentillœ, wild onions, rhubarb, and herbs of various kinds abound over these tracts, intermingled with the furze, and extending to the height of 16,000 feet above the sea. The sheep and goats are tended during the day, and penned at night, sometimes on the open mountain side, guarded by several dogs, or enclosed in temporary huts called Dogress.

The yaks, on the other hand, are turned loose on the pastures, and left at large to roam at will, and to take care of themselves during the summer, and are only reclaimed when the ploughing season or the winter arrives. They are employed both as beasts of burthen and in the tilling of the ground, though former travellers have denied that they are used in husbandry. For the former purpose, however, ponies and goats or sheep are preferred, as the yak cannot travel for many consecutive days without being knocked up. In the plough they have much more the appearance of large shaggy bears than of oxen, and like true mountaineers they evince the greatest impatience under a yoke, and it is therefore necessary for two men to attend the plough,—one directing the plough, while the other walks before and leads the cattle, which are guided from the nose like the oxen of the plains.

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* Yák or Yakcha is the name of the Tartaric or Yak ox (Bos poëphagus.)

It has been said that the yak is so savage, as often to put to flight the inhabitants of a whole village. To this opinion I can by no means assent, for though I have often passed a herd at graze upon the mountains, or carrying burthens along the road, I never saw the least sign of vice among them, nor did they attempt to run at any body. On the contrary, I pronounce them to be gentle and timid, evincing always much more disposition to run from, than at, one; such too, was the character given of them by the Tartars. It is very probable that a savage animal may occasionally be found, as we know to be the case with the cattle of our own country,—but this is only an exception, and cannot justify the sweeping assertion that the breed is savage.

The best proof of their gentleness is found in the fact, that a herd of twenty and thirty yaks is often driven by a mere child, and I could hear of no instance in which the urchin needed farther assistance.

In the higher parts of Kunawur and in Tartary, the yak itself is the breed of cattle in most general use, but in the less elevated tracts, and in lower Kunawur, several cross breeds are used.

The *male* is termed " Yakcha," and the *female* " Breemoo"; this is the true " *Bos grunnies*," or Grunting ox" of Linnæus, and the " *Bos poephagus*" of Hamilton Smith. From the *Yakcha* and the common little cow of the lower hills, proceeds the " *Zo*", and its female " *Zome*"; from these and the Yakcha, or Breemoo, proceeds the " *Strool*" and " *Stroole*." Both these cross breeds are somewhat similar in form to the yak, but they want the long hair on the sides and tail, and are less strongly made.

From the " *Breemoo*," or female yak, and the Hill bull, proceeds another cross breed very similar to the foregoing, and called " *Garra*" and " *Garree*." All are employed in husbandry, and in carrying loads. Black or red are the prevailing colours, and very few are white, except at the tuft of the tail.

Besides these breeds of cattle, the people possess sheep and shawl goats, mules, and large herds of *Ghoonts*, or hill ponies. The dogs are not numerous, and are a sadly degenerated breed of the Thibet mastiff (Canis molossus var Thibetanus).* Cats are seldom seen, but are similar to those of the lower hills, being usually of a deep grey with darker narrow transverse bands on the sides.

In a country so bare of forest scenery, and presenting so little cover, it is not to be wondered at that the wild animals are few in number. The ibex, wild sheep, vulture, eagle, Indian vulture, raven, chough, chicore, bhair, sparrow, snow bunting, some pigeons and Brahminee ducks, were nearly all that were seen or heard of.

The ibex is known throughout the upper portions of Kunawur and in Tartary, by the name of "*Skeen* or *Sikeen*" and appears to be identical with the animal called by Hamilton Smith the "*Abyssinian Ibex*," or "*Capra Jaela*." It is found only in the most inaccessible parts of the mountains near the borders of eternal snows, leaping with surprising agility from crag to crag, and bidding defiance to pursuit.

It is therefore only when the heavy falls of snow on the heights where they love to range have driven them down for pasture to the lower and more accessible parts on the borders of the forests, or in the shelter of the glens, that they fall a prey to the wary hunter, who stealing on them with noiseless tread, fires on the herd from behind the shelter of some ledge that screens him from their sight.

I had no opportunity of inspecting a perfect specimen, but from the horns and skins, the following description of the "Abyssinian Ibex," taken from the Naturalist's Library, would appear to be appropriate.

"It is of a dirty brownish fawn colour, with a short beard, and lengthened hair under the throat down the breast, and a darkish line on the anterior part of the legs and along the back. The horns are superior in length to those of the European Ibex, forming a half circle closer on the forehead."

In the Himalayan ibex, the horns are large, rising as in the European species, "from the crest of the skull, and bending gradually backwards"; "they are flat-sided, and have the anterior surface ringed or barred with very strong cross rugged bands."

The same opinion regarding the increase of these bands with age, is prevalent in these mountains, the natives declaring that *two rings or bands* are the growth of *one year*.

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* For a good figure, see "Gardens and Menageries, Zoological Society".

I showed a plate of the European ibex to the Leepee hunter, asking him if he knew what it was, and he had scarcely set eyes on it, when he exclaimed with delight, " wah, wah, it is the Skeen."

The animal has in a great degree the strong smell peculiar to the males of this genus.

The wild sheep is the same as that which in my trip to the Burrrenda Pass, in 1836, I erroneously stated to be a variety of the " Ovis ammon"; I had not then seen one near. Since that time, however, I have had opportunities of inspecting several fine specimens, and find it to be the " Ovis nahoor" of Nepal, which has been already ably described by Mr. Hodgson. It is known to the Hill people of the west as the " Burrul."

Of the " Ovis ammon," I could learn nothing, save that an animal apparently answering to the description, is found in Chinese Tartary, and I saw an enormous pair of its horns, nailed among other kinds, to a tree as an offering to Devi.

It is said by writers, that one of the descriptive characters of the European vulture eagle consists in its proneness to attack the flocks of sheep, dashing downwards from on high with irresistible strength, and hurling the young or sick animals over some precipice, in order that it may banquet on the crushed and mangled carcase.

If such account be true, it furnishes a strong additional reason for separating the " Lamergeyer" of the Swiss, from the Himalayan bird ; for the latter is never known to attack aught of larger size than a barn-door-fowl, and it must be hard pressed indeed by hunger ere it will even venture that. Its food consists, as I stated on a former occasion, of carrion and offal, which it takes in company with the true vultures, or snatches from the ground in its talons after the manner of the kite (Falcochula) and devours it as it flies. It ranges from Subathoo in the lower hills, to the barren and snow-clad heights of Tartary.

The Chough, or red-legged crow (Pyrrhocorax graculus,) is common over all the snowy heights of Kunawur, from 10,000 feet and upwards. In Tartary it is very abundant, and appears to be identical with the English bird, though rather exceeding it in size. In Hungrung and Spiti I observed a second species, apparently possessing the same habits, and similar to the common chough in all, save the bill, which is much shorter, and of a bright yellow colour, instead of the rich orange of the Cornish chough. The legs are similar in both. They appeared to keep apart from the other species, and were most abundant where the former were fewest. Dunkur and the upper parts of the valley seemed to be their proper habitat. It is in all probability a known species, and comes I think into Cuvier's genus "Fregilus."

As the winter approaches, both flocks and herds are again driven down to the villages, where they are fed on fodder, which has been stored up for them during summer. This consists in a great measure of the tender shoots of a shrub, which grows over the hills, especially in Hungrung, and the upper portions of Kunawur, in great abundance. It is common wormwood, and possesses the pleasant smell of the southern-wood of England, which is I believe the same plant, or a closely allied species ; where this shrub occurs in great abundance the air is often scented with it, and if trodden under foot the smell is both powerful and pleasant.

In the season when the men are on the mountains with the flocks, or carrying grain to those parts of Chinese Tartary where little or none is produced, the care of the crops around their villages devolves almost entirely upon the women, who are seen early and late throughout the day, weeding and irrigating their fields.

The chief produce of Spiti is common, celestial, and beardless barley, (nunga jow of natives) wheat, beans, peas, and phuppra, which are produced in some abundance in the lower parts of the valley from Dunkur downwards.

Dunkur is the chief mart for grain, and has a goodly patch of cultivation around it.

Birmore, a thick kind of woollen cloth, somewhat of the texture of a blanket, is made in this district of the wool which is received from the Choomoortee and Thibetan shepherds. The cloth is made in pieces of about eighteen inches wide, and varying in length from six to twelve yards, and has some resemblance to the thick woollens of which box coats are made in England. These pieces are sold generally in pairs, at five to seven rupees, according to the quality and size.

Though yaks are plentiful through this district, no chowrees are procurable, as the people neglect the tails of the animals, the long hair of which is consequently broken as they roam among the furze of the upper tracts during summer. The villages of Nako, Chungo, Leeo, Poo,ee, and Hungo in Hungrung, are some of the places from whence chowrees are chiefly exported to the lower hills, and much care is bestowed upon their growth.

The black ones are not esteemed by the natives, and are therefore left to nature, and are either used to hang on poles, one of which is erected on the roof of almost every house as a propitiatory offering to some deity, or the long hair is plaited into ropes, which are both strong and durable. Hemp is unknown in this country, and every person of the poorer class has a rope of yak's or goat's hair twined round the waist, which serves not only as a waistband, but is also used to bind their loads upon their backs.

The white tails, however, have the hair often cut to make it grow longer, and the whole is enclosed in a bag to keep it free from dirt, and to prevent its being broken by thorns and bushes. When the hair has attained a good length, the tail is cut off, bone and all, and dried in the sun, after which the chowree, or chownree as it is termed, is sent to the lower hills for sale. In Hungrung the price asked is from 1-8 to 3-8 Co's. rupees, and even four rupees, according to the length, and the quantity of hair. At Simla double these sums are demanded by the Cashmerians, who purchase them at the Rampore fair. Formerly the price even in Hungrung was much lower, but the demand for them, since Simla has become a *fashionable resort,* has raised their value.

The same effect has been produced at Soongnum in Kunawur, with regard to the price of blankets which are there made; formerly *one* blanket was as thick as *two* of the present manufacture, and sold for the same, and often for a less price. The demand for them of late years has, however, both raised the price, and deteriorated the quality. Now, it is no longer a matter of rivalry who shall produce the *best* blankets, but who shall produce the greatest number, and the wool which formerly would have been apportioned to one, is now made into two blankets, which are sold at 3-8 and four rupees a piece at Soongnum; and at Simla from five to eight rupees by the Cashmerians.

Among the Tartars there are many families who possess no fixed habitation, but wander about from place to place, with their flocks, ac-

according as they find a market for their goods. To these people, in the language of the country, the title of "Kampa" is applied.

They live altogether in tents, or encamp beneath overhanging rocks, wandering, as the winter approaches, from their native country down to the lower parts of Kunawur and Cooloo, where they dispose of the produce of the upper hills, and subsist their flocks until the periodical rains are about to commence, at which season they again travel to their native scenes, laden with grain, iron, &c.

The Tartar who accompanied me as a guide through Spiti by order of Puttee Ram, the present vuzeer, was constantly termed "Kampa" by the people of the different villages, and at first I thought it was a title signifying some sort of authority, but it appeared on inquiry that he had once pursued the wandering trade of a Kampa, and although he was now well off, and possessed of houses and land both in Hungo and Leeo, the term still clung to him.

Another title often conferred upon him, also, was that of "Laffa," which I found to have nearly the same meaning as the word "mate" of the lower hills, that is, a servant possessing some little authority over his fellows, as the mate, or head man of a set of Japannees, the mate, or man in charge of a Dâk bungalow, and in Kunawur, the mate of a village, who is the "locum tenens" of the Mookiah when absent. Gerard more than once mentions having exchanged scarfs, or khuttubs, with the Laffa of Peenoo and other villages in Tartary, which he says is the usual custom.

During my trip through Tartary, I never even saw a single khuttub, nor did I find it necessary to offer one, although the Laffa of each place paid me a visit, and presented the usual small "nuzzur" of attah, raisins, or ghee. Gerard no doubt concluded it was necessary to present a scarf, because he had found it the custom to do so in Chinese Tartary.

All the inquiries however that I made on the subject, tended to prove that the custom only prevailed among the Chinese people, and that it was quite unnecessary to make any present at all to a person of such inferior rank as the Laffa or mate of a village.

On my return from Spiti, when starting from Leeo where my guide resided, he begged to be released from his post, as in a few days he wished to start for Choomoonee with his last year's produce, and purchase wool for the Rampore market. Having no farther need of his services, I dismissed him with a present of five rupees, a common single bladed penknife, and some strings of imitation coral beads, as also a string of beads for his wife.

The present though partly consisting of what I thought trash, was received by him with every mark of delight, and laying the things at my feet, he knelt down and touched the ground with his forehead,[*] saying he had received a great reward.

On the 4th July, after an absence of nearly a month, I once more took up my abode in the small bungalow at Soongnum. It is a small flat-roofed house, of one room, and was built several years since by a Dr. Wilson on the site of an old temple. In front of the door is a post on which are nailed many horns of the ibex, wild sheep, and goats, and a similar collection is seen against the trunk of the cedar tree which overhangs the house.

The town of Soongnum is situated, according to Dr. Gerard, in latitude 31° 45′ and longitude 78° 27′ 24″ east, and stands in the bottom of a glen between the high passes of Roonung and Hungrung, the one being directly in front, and the other in rear of it. The glen is called the valley, of Rūshkŏolung, and runs nearly north-west and south-east. It is well watered by a stream, which runs through it from the snows on the Mānĕrūng Pass, above Mānes in Spiti, and joins the Sutledge a short distance below Soongnum.

From the town, extending about three miles up the stream, is a beautiful strip of cultivation of half a mile in breadth.

There are generally two crops produced during the season, the first consisting of wheat, barley, and beans, which is generally gathered in during the months of July and August, and the second of Phuppra, which is ready in all September, unless, as sometimes happens, it is destroyed by early frosts and snow.[†]

Turnips also of large size constitute part of the second crop, and are said to weigh two and even four pounds each. These are yellow, and when dried and pounded they are mixed with the wheaten or barley flour, and form the principal food of the inhabitants during the autumn and winter seasons. From their yellow colour and farinaceous nature, they would seem to approach the Swedish species; some care is bestowed upon their cultivation, as if sown thickly, they have not room to swell, and consequently are of small size;—in order to increase their growth, the fields are thinned and the turnips planted at some distance from each other, by which means they come to perfection, and are dug in October. Besides forming part of the food of the people, they are also given to cattle during the winter.

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[*] This was performing a kind of "*Kotoo*" !?

[†] In all preceding accounts of these hills, the word *Phapur*, is almost invariably substituted for Phuppra, which is correct, and is pronounced as though it were spelled "*Puppra*."

The beans have all the appearance of the common European garden vegetable, and are used when ripe to feed cattle, or are ground into floor, and eaten by the people.

From the situation of Soongnum, between the high passes, and the direction of the valley, a strong wind generally prevails during the greater part of the day, and retards in some measure the advance of vegetation, which is here far less vigorous and forward than at the Tartar villages of Hungo, Leeo, and Chungo, the first and last of which, although at a greater elevation, are not so much exposed as Soongnum.

The manufactures here are blankets and sooklat, which are exported to the Rampore fair, where the former sell according to the quality, from three to five rupees each, and the latter at about four rupees eight annas, to six and seven rupees per pair. The latter article is, however, principally exported from Khanum and Labrung, and its quality is somewhat better than that of Soongnum.

There is a large Takoordwara, or Lama temple, in the upper part of the town, to which light is admitted by two apertures in the roof, which are protected from the weather by conical roofs of cedar wood, somewhat after the Chinese style.

About half a mile farther up the glen is another and larger temple of the same description, and near it are the huts where the "nuns," as Gerard has termed them, reside during the winter season.

These nuns are strictly speaking *female* Lamas, or priestesses, and are called "Jummoo." They are forbidden to marry, and usually wear garments of red stuff.

Some are dispersed during the summer months, and attend upon the different temples throughout the district, reading the sacred books, and performing religious ceremonies like the Lamas; others are occupied in the care of their crops; while those who are poor, and have none, roam about begging a livelihood.

In the winter, when the severity of the season generally prevents their wandering about, they assemble at Soongnum, and reside together in a collection of huts near the town, until the return of spring again disperses them. This at least was the account given of them by the natives.

The Lamas, on the other hand, reside during winter, some in the temples and others in their own private dwellings.

In some of the temples are large wooden cylinders* or barrels placed on an axis and turned by a stream of water; they are also seen at Soongnum by the road side, with a shed built over them. The temples are often ornamented with colossal figures of their gods, which are sometimes represented in grossly indecent attitudes.

The fruits at Soongnum are apricots, apples, neozas, and grapes. The apples are of good size, and are said to be finer here than in any other town of Kunawur, and ripen about the month of October. The finest grapes are produced at the village of Ukpah on the Sutledge. At Soongnum the grapes are neither very abundant nor very good, and do not occur across the Hungrung pass at all. Apricots are seen as far as Leeo, where they also cease to grow; and in Spiti, as already mentioned there are no fruits at all. Besides these garden fruits, there are gooseberries and currants innumerable on the mountains' sides, but they are not cultivated by the natives, nor held in estimation.

From Soongnum I made an excursion up the Rŭshkŏolung valley, towards the village of Roopa, near which I heard that veins of copper ore were found in the rocks.

This glen is certainly much more worthy the name of a valley than any I have yet seen in the Himalayas, with the exception of the beautiful and fertile valley along the banks of the Pubbur river, leading down from the Burrenda pass through Chooara.

For three miles from Soongnum, the pathway lay through rich fields of barley, beans, and young wheat, studded with numerous apricot trees, so numerous indeed, that the whole appeared like luxuriant vegetations springing up beneath the shelter of a large orchard or forest of apricots. This strip of cultivation is about half a mile in width, and through it rushes the foaming stream of the Darboong river, which takes its rise in the snows of Mănĕrūng Pass above Maness in Spiti.

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* These are used as the Manees above noted; written prayers are enclosed in them, and the rotatory motion is supposed to make them acceptable.

The spot partook more of the sweetness of one of those beautiful and picturesque vales in which our Scottish hills are so rich, than of the usual tameness of oriental Highland scenery.

Here as I walked along, I felt more pleasure than I had experienced during all my wanderings, while contrasting the beauty of this scene with the bare black hills of Spiti, to which I had been for so many days accustomed. There, all was cheerless, and almost devoid of vegetation; while here, around me lay a broad sheet of green fields, above on the mountains' side rose dark forests of neoza and kayloo pines, whose sombre tints were again relieved by the paler hue of the cedar and the willow, while bushes of the dog-rose were scattered at random through the valley, loaded with flowers, and presenting literally a mass of pink of every shade, from the dark bright tint of the opening bud, to the pale hue of the withering flower. About three miles from Soongnum the valley narrows, and becomes a mere mountain glen; cultivation ceasing for about a mile, when it again refreshes the sight around the village of Roopa. Beyond this the road ascends over broken rocks, and winds high above the bed of the torrent, through a forest composed almost entirely of cedar trees. These are mostly stunted, and very crooked, so that it is with difficulty that plants of any size fit for economical purposes can be procured. This difficulty has lately been increased by the erection of a large temple at Khanum, for which all the best trees in the district were selected, and few therefore of any size now remain.

Between Soongnum and Roopa, a large portion of the neoza pines are the property of the Bussaher Rajah, to whom the produce is annually sent down. These are generally situated on estates that have lapsed through the extinction of families, or other causes, and it is not a custom peculiar to Soongnum, but obtains also in other parts of Bussaher.

Three miles from Roopa, and seven from Soongnum, in the midst of the cedar forests, my guide stopped, and pointing upwards towards the summit of the rocks, which rose boldly and abruptly in rugged cliffs, he showed me a white mark far above the belt of trees, where he said copper had been dug in the preceding year, but that now the weight of the winter snows had forced in the rock, filling the mines with rubbish, and the workmen had gone farther on in search of a fresh vein of metal.

Thinking that this might be merely a *ruse* to prevent my ascending to the spot, I desired him to show the way, and lead me to the abandoned mine, but he declared he had never been there, and could not guide me. Hereupon a council was held as to what was to be done, for to attempt to scale the rocks without a guide, was almost tantamount to suicide.

In this dilemma we espied at no great distance a kind of bower or hut built of green branches, torn from the cedar trees amongst which it was situated; so nicely was it calculated, from the materials of its construction and its position amidst the low and stunted trees, to escape detection, and pass for part of the brushwood, that I could scarcely believe it to be any thing else, until the guide removing a large branch, exposed a door way to view.

Within this sylvan abode was a woman with an infant in her arms both fast asleep, but being awakened by the removal of the door, she replied to our inquiries that the miners had gone in search of ore to a part of the mountain some miles distant, and would not be back for eight or ten days, and that she and an old man were left behind to burn charcoal against their return.

After some delay we succeeded in finding the man, whom we obliged very unwillingly to show us the path up the rocks.

With some grumbling at the prospect of the toil before him, he at last started, and never in my life do I wish to follow any one over such a path again.

The first four or five hundred feet were tolerably easy, being composed of loose soils and fragments of rocks, over which it was not difficult to climb, from their more gradual slope, but beyond this the rocks rose at once precipitously, presenting nothing but their ragged and projecting fragments to walk over. The ascent therefore was now hazardous from its steepness, and often caused us to stop to take breath, but the footing on the rock was firm, so that by the aid of both hands and feet, we succeeded in nearly attaining the desired spot, without once thinking how we were to descend from our aerial position. At last a deep chasm, which had once been the bed of a snow stream from above, for a while arrested our progress, until we had cut holes or notches for our feet. This was done by the guide, who standing first on one leg and then on the other, cut or scraped with the end of a stick the holes as he advanced, all the while balancing himself over a precipice, into which, had his footing given way, he must have been hurled and dashed to atoms. He, however, was perfectly at his ease, for having formed the stepping places, he turned his back upon the precipice as with the greatest unconcern he tendered his hand to steady me over the yawning gulph. It was a place that I would gladly have returned from, but having insisted upon coming, and taunted the people for their hesitation, pride forebade my return. With a beating heart, and somewhat unsteady step, I accepted the proffered aid, and succeeded in crossing.

Two such gaps in the hill side were passed before we reached the abandoned mines, which after all were holes scraped in the rock to the depth of eight or ten feet, and which were now filled up by the splitting of the stones, and the quantity of rubbish brought down by the frost and snows of winter.

Here I picked up a few weathered specimens of the ore, which I thought a very poor remuneration for the toil I had undergone.

If the path was difficult of ascension, it will be readily conjectured that it was twice as much so to descend again; by dint of sometimes descending step by step backwards, and at others almost sitting down to it, down we got in safety, after ascending and descending a height of three thousand feet, and after a walk of seven miles from Soongnum.

The copper occurs in veins of white quartz, running parallel to the strata of greywacke, and old red sandstone, which are here the chief formations. It is worked by a few miners from Rampore, who are just enabled to earn a livelihood by the sale of the ore. A small duty paid in copper is taken by the Rajah of Bussaher, who is said to have worked the mines on his own account as a trial for one year, but the small quantity obtained, the distance of carriage, and the impossibility of working more than six months in the year, induced him to abandon the undertaking. The present miner resides in the forest near the different mines, or more properly excavations, during five or six months, and sells the produce of his labours at Soongnum.

In the autumn and winter the mines are abandoned on account of the snow, and the return of spring invariably discloses the destruction of them, by the splitting of the frost-bound rocks.

Last year (1837) the quantity of ore obtained, exclusive of the Rajah's duty, was from sixteen to seventeen maunds. Were these rocks situated in the lower hills, free from the severer action of frost and snow, they would doubtless yield a good return for the labour of working them, as the ore is by no means scarce, or only on the surface as has been stated. It occurs in veins in several parts of the mountain, and is deep seated; the fact of its occurring on the surface, is simply because the outcropping of the strata exposes it to view, but the vein dips down to the N. E. between the beds of greywacke and old red sandstone, and is thus inaccessible to the rude method practised by the people, whose excavations or mines are invariably filled up with rubbish during the winter. The ore is found on both sides of the valley, at about 13,000 feet above the sea, and 4,000 feet above Soongnum.

At the foot of the rocks I found my tent ready pitched among the cedar trees. Halting here for the night, I, on the following morning again returned to Soongnum, whence after a day's rest, I proceeded to recross the Roonung Pass.

The march from Soongnum is one of great fatigue; the road being one long continued ascent from the stream below the town to the summit of the Pass, or leading to a perpendicular height of 5,200 feet in a distance of about five miles.

The road, which on my arrival here in the beginning of June, was with the whole hill side buried deep in snows, was now on the 10th July quite free in its whole extent, with the exception of a few yards at the summit, where the snow still formed a long, and hardened belt. Flowers of many kinds were seen along the way. The "Saxifraga ciliata," at a height of 12,500 or 13,000 feet, was just opening into flower, and the bright colours of a yellow potentilla, tinged the whole hill side.

On the *southern face* of this mountain not a trace of snow was any where to be seen, but in its place a most beautiful and refreshing sheet of young and luxuriant vegetation, sprinkled with the bright colours of various flowers.

I call attention to these facts, because it has hitherto gone abroad to the public that the snow on the Himalaya lies longer, and lower down on the southern face, than on the northern, and as both my experience in this matter, and Dr. Lord's remarks on the Hinducush are directly at variance with this *reputed* fact, I have ventured to quote the above named gentleman's words, and shall endeavour to remove what I have found to be an erroneous impression.

" At the time of our visit," says Dr Lord, " the snow which on the southern face extended in any quantity, to a distance of not more than four or five miles, on the northern, reached *eighteen or twenty*, and at a subsequent period, November 9th, when I made an attempt to go into Turkistan by the pass of Sir Ulung, and met with *no snow* until *within ten miles of the summit*, it actually on the northern face extended *sixty miles*, or nearly four days' journey." This is a fact which forcibly arrested my attention, as the *reverse* is well known to be the case in the Himalayan chain, where snow lies lower down on the southern face than on the northern, to an extent corresponding with 4,000 feet of perpendicular descent.

But the Himalaya and the Hinducush have the same aspect; the same general direction; lie nearly in the same latitude; and in fact are little other than integral parts of the same chain. The local circumstances however connected with each are precisely reversed. The Himalaya has to the north the elevated steppes of Central Asia, and to the south, the long low plains of Hindustan; Hinducush, on the other hand, has to the south the elevated plains of Cabul and Koh-i-damun, between five and six thousand feet above the level of the sea, while to the north stretch away the depressed, sunken, and swampy flats of Turkistan."

Against this long received opinion, that the snow lies deepest on the southern face, I shall merely oppose the few facts which fell under my limited observation during my journey into Tartary, and leave others of more experience to decide the point.

First, then, it must be observed that in the month of June, when I crossed the Roonung pass, the snow lay deepest and farthest down on the northern exposure.

On the southern face of the mountains it was first met with at about 12,500 feet of elevation, " lying in large fields or patches, and uniting," at about 13,000 feet into one broad unbroken sheet, from whence to the summit of the Pass, or 1,500 feet more, it continued so, with the exception of fifty feet at the crest, when on the southern face there was none at all.

On the northern slope, on the contrary, it commenced at the very crest of the Pass, and continued in an unbroken sheet " to fully two miles and a half," while " beyond this, for half a mile more, it was broken and lying in detached masses."

The facts observable here therefore are greatly in favour of the northern face, for while the extent of snow is there estimated at three miles, that of the opposite exposure is but *two thousand feet.*

Again, on the Hungrung Pass the southern side had far less snow, both in respect to depth and extent, than the northern face down which it stretched nearly to the village of Hungo, or to a distance from the crest of the range of 3,600 feet in perpendicular descent, or between four and five miles from the Pass.

Again, in Spiti, above Leedung, while the southern exposure of the Pass was almost entirely free from snow, except immediately at the summit of the range, the whole northern face was buried deeply to some extent.

On my return to Hungrung in July, the northern side still held patches here and there, while the crests of the mountains were covered; but to the southward not a vestige of snow remained, except far down the glen, where from the falling of repeated avalanches from above, a hard and solid mass had become wedged into an arch or bridge across the brawling torrent that descended from the Pass.

Opposite to this, and merely divided by the narrow valley in which stands Soongnum, the northern aspect of Roonung still retained " a broad, and hardened belt of frozen snows" along its crest, while to the southward, not a trace of it remained.

To the right of Soongnum, towards Roopa, on the southern cliffs, no snow remained at all, while those with the northern aspect were in most parts still deeply buried, as was also the northerly face of Manerung, in Spiti.

From these few facts it will appear, that contrary to the usual belief, the snow is retained longer on the northern than on the southern exposure, exactly corresponding to the scientific observations, and remarks of Dr. Lord on the Hinducush;—and why indeed other than such a result should be expected, I am at a loss to divine. The aspects nearly the same, forming part and parcel of the same great range, surely the same phenomena in this respect might naturally be looked for.

From the crest of Roonung Pass, I bid a long farewell to Soongnum, which was seen in the depth of the glen below, and then dropping over the Pass, I descended gradually for about four miles to a stream of water, and a flattish piece of ground, where I sat down beneath a rock to await the arrival of my tent and baggage. Fatigued by the length of the toilsome ascent from Soongnum, and by the heat of the day, I soon fell fast asleep in my shady retreat, and on again opening my eyes, I found the tent pitched, and ready for my reception. It was now four o'clock P. M. and I found that I had enjoyed a sleep of as many hours, having arrived at the spot about midday.

We were here still at a height of 12,000 feet, and far below us in the distance was seen a part of the town of Khanum, while immediately beneath our encampment, at about two miles distant, was a broad piece of cultivation, with a few temporary huts called a Dōgrēe, and belonging to Khanum and Leebrung. These patches of cultivation, far from villages, are often met with both in Kunawur and Hungrung. A few huts are erected on them, which serve to shelter those to whom the crops belong during the summer months, and which, when the harvest is gathered in, are abandoned during the winter. To these places the flocks and herds are also driven, where upon the surrounding hills, now free from snow, they find an abundant pasturage. In the language of Kunawur these temporary residences are termed *Dōgrēes*, and in the Tartars "*Rezing*"; thus we find "*Rezing*" and "*Chang-rezing*", on the road to Spiti, to be patches of cultivation, and sheepfolds belonging to the inhabitants of the village of Chango.

Note on the Map attached to the Report of the Coal Committee in the 98th Number of the Journal of the Asiatic Society.—By CAPT. MACLEOD, M. N. I. *late in charge of Ava Residency.*

The importance of correct geographical information, and that errors should not continue to be perpetuated through the Journal of the Asiatic Society, or at least, that what has been advanced on native information, or laid down on surmise, may not be received as indisputable facts, induce me to trouble you with this note, and the accompanying sketch.

A comparison between the sketch map appended to the Report of the Coal Committee in the 98th No. of the Journal of the Asiatic Society, and the one now submitted, will at once show wherein the errors in the former lie, I will not, therefore, take up your time by pointing them out.

The sketch by the Coal Committee, above alluded to, has been evidently copied from the map of the Eastern Frontier, by the late Capt. Pemberton; the coal locality marked C. was not noted in his original map, not having been discovered at the time of its compilation; indeed, corrections in the sheet representing that portion of the country in the map, become necessary, in consequence of many doubtful points having fallen under the personal examination or survey of various persons; and subsequent to its passing out of Capt. Pemberton's hand, a whole sheet was cancelled, and another substituted in its place. I presume, however, the boundary line as marked by Capt. Pemberton from information, was preserved in the new sheet, and when the coal field was discovered, its site being from observations beyond that line, it was taken for granted as belonging to the Siamese, and placed accordingly in the Map.

The position so assigned to it, has evidently led the Committee into doubt; for in the report above noticed, it says, "although the quality is excellent in the third situation in which the mineral has been found by Dr. Helfer at C., yet its distance from the coast is such as to render it of very doubtful utility on the Bengal side of the Peninsula, whatever benefit it may eventually prove on the Gulf of Siam, as it *seems* to be situated *beyond* the boundary range of hills." It is this point that, I think, merits some attention, and on which I have to offer a few observations.

That there is no possibility for the Siamese to benefit by this coal field, even supposing that it belongs to them, is almost certain; for they have no water communication to the place; but the coal, if ever required, must be transported by a land route, and I presume over hills, though of what magnitude, I will not venture to surmise.

That it may not be supposed that I speak from information alone, I beg to observe, that I proceeded myself by water to within 8 or 9 miles of the spot, where finding the stream too shallow to admit even of small bamboo rafts ascending it, I continued my journey by land to the old Siamese town of Thain Khan, standing on the stream we had quitted, and from thence to the coal site, crossing many small nullahs on the way, which discharge themselves into the Thain Khan river, on the banks of which the coal is found. This stream appears to come from some distance beyond this locality, for our subjects from Mergui annually proceed up it beyond that spot for the distance of two days' journey, to cut the Karamet, or the bastard sandal wood (which is an article of commerce), and which they bring down on rafts, when the stream is swollen by the rains, without any question from the Siamese.

No boundary has been fixed on this frontier. At the close of the Burmese war, the British considered themselves as having a right either to what properly belonged to Pegue or Burmah, or what those incorporated nations held at the time of the rupture with us, and was wrested by us from them, or was included within the districts ceded to us. It is well known that a considerable space intervened between, the two countries having become depopulated by the constant aggressions of either party, and which was left unoccupied from motives of safety and convenience.

That this is not the only point in which incorrect geographical information has misled us into wrong conclusions as to defined boundary marks, will be seen on a reference to the note attached to the Map of Dr. Richardson's route from Bankok to Zimmay, published in the 97th No. of the Journal, we have to the north and west of Moulmain considered the Thoung Yeen river as the line of demarcation, and when this line is lost at the source of that river, a range of mountains supplies its place, and which is supposed (for I may safely say no part of the line from the 14th degree of Lat. downwards has been examnied) to continue in an unbroken line to the southern extremity of our territories. It must be admitted, that this change from a river to a range of mountains, which coming from the N. W. runs at some short distance from, and parallel to it, and in which numerous streams take their rise, and descending the hills contribute to swell that river by their tributary streams, is not the best line that could have been selected. But it is now discovered, that the range of mountains themselves was considered by the Burmese and Siamese as the boundary.

Capt. Lloyd also, from whose excellent and accurate Map of the Mergui Archipelago I have borrowed largely, when speaking of the same coal field, the position of which was fixed by Lieut. Fell of the Indian Navy and myself, appears to doubt "whether the locality in question is in the British or Siam territory; for Cin Point of the charts on the Gulf of Siam side, is in latitude 12° 10′ N. and longitude 100° 10′ E., or only 35 miles in a direct line further from the coal site; whilst from the town of Cin, situated in a more southerly direction, where the Gulf of Siam is represented as having a deep course to the westward, it is only 23 miles."

The mountains on the eastern shore of the Gulf of Siam, called by the Siamese Samroi Yot (the 300 peaks), is mentioned by Mr. Crawfurd in his "Embassy to Siam and Cochin China;" he says, in latitude 13° 2′, "a few miles to the north of us was seen the entrance of a river, upon which is situated the town of Kivi," (Cin). This shows that there are rivers rising in the range of hills to the westward of it, which flow into the Gulf of Siam, and whether the Kivi river or the Thain Khan, or as some call it, the little Tenasserim, rise in the same range or adjoining ones, that range in which the latter has its source is certainly our proper boundary. From Cin Point the coast has been delineated from *native* information, though I believe the best of the description that could be obtained; but may the coast not have been drawn as tending too much to the westward from Cin Point? But whether it does or not, or what ever the breadth of the range of hills may be, I conceive, that it has little to do with the present question, for no doubt can exist, even on a reference to that ultima ratio—the Law of Nations.

I think we should be culpable in the present case to remain silent, and allow a Map to go forth disseminating error, and which might be hereafter brought forward as clearly defining the boundary line.

I cannot avoid noticing, that a most interesting point of geographical research still remains involved in doubt; viz. the breadth of the Peninsula between the Mergui Archipelago and the Gulf of Siam; the advantages which might result to Government, both in a political and commercial point, by an investigation into the subject, has already been brought forward by Captain Lloyd and others, and it is to be hoped, now that our attention is called to the Eastward, that this portion of the Peninsula by which the communication across might be facilitated and shortened, may be examined by experienced and intelligent Surveyors.

Calcutta, July 27th, 1840.

Note.—I had received the above interesting geographical notice, when it occurred to me to refer the subject to Capt. J. Lloyd, of the Indian Navy, so well known by his recent valuable surveys in the Bay of Bengal, which with Capt. Macleod's ready permission, was done accordingly. The result of the reference appears in the following notes, addressed to me by these officers, which will better explain their views and opinion on a geographical point of some interest when given in the original, than would be the case were I to attempt to embody their contents in a more compendious form.

From CAPTAIN LLOYD *to the Officiating Secretary.*

" We know nothing of the Coast about and below Cin Point beyond what the old maps afford us, and which disagree very much; indeed, this portion of coast seems to be very little known, and is a part which I pointed out as desirable to be surveyed three years ago. Capt. Macleod has had access to all the charts and information that I have been enabled to get hold of, and therefore there are no additions or alterations in his map that I could venture to make; but as my recent survey makes the mouth of the Pakchan river, which forms the boundary of the British territory, considerably further to the southward than laid down in Captain Pemberton's map (nearly a degree), I would suggest that Champhon be brought further down, so as to correspond with the best information we possess of its being nearly east from, or on the parallel of the town of Pakchan or Karao."

From CAPTAIN MACLEOD *to the Officiating Secretary.*

" Many thanks for the perusal of Captain Lloyd's note, which I have kept longer than was intended, to make some additions to the sketch.

My object in furnishing you with the sketch, was to rectify such errors as I could within what I supposed to be our own territories; but as the position of the Choomphon river has now been brought forward, the whole of that portion of the west coast of the Gulf of Siam may be taken into consideration; I will, therefore, at the risk of tiring you, even enter somewhat fully on the subject.

When I made the sketch I sent you, I followed Crawfurd as the latest authority for that part of the coast of Siam, except so far as to give the coast below Kivi Point a less curvature than it had in his map, to accommodate it to the site of the coal fields. I have since looked into Horsburgh's Chart, and find his delineation of that part would have suited me better. I have also since met with certain documents connected with that coast, and a sketch, which I shall allude to below.

I have now added to my original sketch the outline of the Siamese coast as given by Crawfurd, Horsburgh, and the sketch mentioned above, so that these being placed in juxta position with each other, you will be able, at a coup d'ail, to see the differences of the authorities, and draw your own conclusions.

I am not acquainted with Horsburgh's authorities for his chart. Mr. Crawfurd sailed in sight of Kivi, or Cin Point, so that we may consider this point as satisfactorily fixed. The remainder of the coast was delineated from information obtained from an intelligent native Mahomedan of Siam, who was acquainted with the use of maps, &c. and could even take an altitude of the sun. So that the value of these two authorities must be left to the judgment of persons interested in the matter.

I must now revert to the sketch noticed above. During Colonel Burney's Mission to Siam in 1826-27, he left at Sigor, Mr. Harris, Acting Assistant Surgeon, and Mr. Leal, his interpreter, to accompany the rajah of that place by land to Bangkok. Mr. Harris appears to have kept a Journal, from which I have extracted largely, as the accompanying paper will show; and though the purpose I intended it for has been nullified, yet as we are on the subject of that coast, I enclose it.

By the Journal it appears that the late Mr. Leal, who was, I believe, a nautical man, fixed the latitude of many places by observation, and amongst others Choomphon. These materials were embodied by Colonel Burney; taking as it will be seen, the coast line from Horsburgh for his ground work, I concluded that the point respecting the position of Choomphon would have been thus set at rest, but finding that though many of the latitudes given in the Journal coincided with the position of the places as laid down by Horsburgh, that with a quadrant only, which Mr. Leal had, (unless some mistake has been made respecting the instrument) he could not have taken the altitudes of the sun at the places where he was, at the time of the year, to produce the results given, unless he worked by double altitudes, which from the situation he was in, I fear he could not have had the opportunity of doing, I am at a loss, therefore, what value to place upon these observations, especially as he has made a great error in the position of the Pakchan river, on the western side of the Peninsula.

Mr. Leal proceeded from Bangkok to Mergui with a number of Burmese captives, who had been released by Colonel Burney's exertions. This portion of Mr. Leal's journey has been noticed by Mr. Wilson in his usual interesting manner, and devoid of the stiffness of a Journal. It does not appear that Mr. Leal took any observations during this journey; at least the author does nor mention them, nor does he indeed notice those noted in Mr. Harris's journal in their journey up to Bangkok.

After landing at Bangnorom, in the Gulf of Siam, on the fifth day, Mr. Leal and his party reached the Kosoon mountain. This is placed in the sketch by Colonel Burney about thirty-five miles direct from the village on the coast.

By the description of this portion of the journey, I conceive the mountain to be one of the range placed by me immediately to the southward of the coal field, or a continuation of them to the eastward. A tree was pointed out to me as the spot where conferences were held by the Burmese and Siamese; this may have been one of the three mentioned by Mr. Leal. I did not, however, understand that it marked the boundary, and would, I think you will admit, be a strange mark in a land of mountains and forests to divide two countries. I was informed that the spot was selected as the most convenient and spacious for such meetings, after passing over the hills from the Siamese side, and, indeed, the only one adapted for such assemblies, certainly for many miles towards, or in the Burmese territories now ceded to the British, as far as I know or saw.

That the place is the same as alluded to by me, the similarity of the name, making allowances for Burmese and Siamese pronunciation, will show; the Burmese call it Thaing-Khon-Myo; Mr. Leal, Sing-Khon-Thape. Myo is the Burman word for a town, and may correspond in signification to the Siamese word Thape, which has been dropped by the Burmese, and the other substituted for it.

That the stream the party came upon was the little Tenasserim, or that part of it called the Thaing-Khon river, there can be no doubt, both from the length of time they were coming down on rafts, which on the great Tenasserim would have placed their starting point much too far north, and from the channel being obstructed by trees, which is not the case with the latter, but which I found to be with the former. The party themselves were of two opinions as to which branch they were on. This I think will bear me out in what I said respecting the hills, marking our boundary in the map of the Coal Committee.

The next point to be noticed is the Pakchan and Choomphon rivers, jointly. Mr. Leal proceeded up the former river, and travelled by land to the town of Choomphon. He does not appear, however, to have made use of a compass in ascending the river, for in the sketch, its course is marked as being from east to west, and that of the Choomphon river, which he says is very winding, from west to east. The late Dr. Helfer, found the course of the former to be from the NE.; now as Mr. Leal has made a mistake in this, is it not possible that he has followed up the error in the latter, and made it run from the West instead of the SW.? If so, there would be no necessity for moving the mouth of the Choomphon river to the Southward, but merely to change its course as marked by me on the map.

All the information obtained by Captain Lloyd, and what Mr. Leal says, would justify the removal of the town and river of Choomphon as proposed by Captain Lloyd, but there would be some difficulty in accommodating the other places on the Siamese coast to it. Some of these may have been correctly laid down.

Choomphon had a force stationed at it when the Burmese held the Tenasserim Coast, to watch their proceedings, and also to make occasional kidnapping incursions into the Burmese territories; it is well known that in those days Mergui and Tenasserim were the only places inhabited, having forts for the protection of the inhabitants. If Choomphon was moved to the Southward, would not the distance which is for such purpose already great, be somewhat beyond bounds?

Taking every thing into consideration, I should be inclined to leave the Siamese coast alone, and rather than removing Choomphon at a venture, and continuing without wholly rectifying an error, merely add the notes to the maps as I have done. I hope the day is not distant when we shall have these points satisfactorily adjusted.

Extracts from MR. HARRIS's *Journal, taken from* MR. MOOR's *work on the Indian Archipelago.*

"*Dec.* 18*th* 1825.—Leave Ligor—crossed the Tha-Wang (1) river, and halted for the day at the village of Nam Jin. Mr. Leal made the latitude of Ligor by observation 8° 17′ 16″ N.

" 19*th*.—Remained all day at Nam Jin.

" 20*th*.—Started from Nam Jin at about 9 A.M. At 10 crossed a small stream, Nam Khoa, from which the road was very bad, until ½ past 2 P. M. when we arrived at Ban Hooa Thap-han, close to the sea-side.

" 21*st*.—Started at about 10 A.M. and after passing over very bad roads covered with water, arrived with a few of the party only, at 8 at night, at Ban Cloi, a village on the right bank of a river of the same name.

" 22*nd*.—The Rajah not being up, we took a boat and went down to the mouth of the Cloi (2) river in about an hour. Mouth of the river in latitude 8° 42′ N.

" 23*rd*.—Detained all day at Ban Cloi.

" 24*th*.—Started from Ban Cloi at ½ past 7 A.M. At 10 crossed a small stream named Khlong Pumsoo. At ½ past 10 another, Khlong Khien. At ½ past 12, another, Khlong Nam Hooa, near which we passed through paddy fields. At ½ past 1 we crossed the Khlong Tha-phoon; at 3 Khlong Thanok, near the foot of a high hill; and at 6 P. M. we arrived at a place Ban Krang, (3) where we halted for the night. Our halting place was situated at the foot of a hill, on a beautiful plain, through which a fine clear stream, Khlong Krang, flowed.

" 25*th*.—We crossed the Khlong Krang, at ½ past 7 A.M. At 11, Khlong Soch Hoon. At ½ past 2 came in sight of an extensive range of mountains on the left side of the road; and at 6 P. M. arrived at our halting place near the village of Hooa-nat.

" 26*th*.—Left Hooa-nat at 8 A.M. and after crossing three or four streams, and

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1 I suppose this is Crawfurd's Ta-yang.

2 This must be Horsburgh's Clay.

3 This is about where Horsburgh and Valentyn place Along.

in one place some hilly ground, called by the Siamese the Nine Hills, we arrived at 6 P.M. at our halting place, near a small village named Kahnom. (4)

"*27th.*—Detained by heavy rain.

"*28th.*—Started at ½ past 6 A.M. and at 12, crossed a stream, Khlong Chekram, and halted at Ban Chekram.

"*29th.*—Started at ½ past 7 A.M. At 8 crossed Khlong Tha-thang, a small stream. At 12 passed near some hills, the road leading between two of them, at some distance from each other; and at about 3 arrived at our halting place near Ban Hude, on the side of a very rapid stream, Khlong Koowat, which we crossed.

"*30th.*—Halted.

"*31st.*—Started at ½ past 6 A.M. At 10, crossed, Khlong Dinles; and at ½ past 10, Khlong Sai; at ½ past 11, Khlong Banpring; and at about 3 P.M. arrived at the halting place, Ban Kliung.

"*1st January.* Started at ½ past 6 A.M. At 10 crossed Khlong Hooei Yong reng; at 12 saw a hill to our left, and at 2 P.M. arrived at our halting place on the right of a large river, Khlong Tha-Khan, on the opposite of which, towards the mouth of the river, is a large town called Ban-Phoon-phin. (5)

"*2d.*—Detained in crossing the elephants. We attempted to go in a boat down to the mouth of the river, but it was too late in the day. We saw a branch of the river running down to the southward, which we were told led to the town of Bandon. We visited the town of Phoonphin. Mr. Leal took an observation, and made the latitude 9° 38′ N.

"The Thakan (6) river is the northern boundary of the Rajah of Ligor's jurisdiction.

"*3rd.*—Started at 10 A.M., crossing Kholong Thakhan in a boat, down the left bank of which river, the road passed for some time. At 4 P.M. arrived at our halting place near Ban Kalok.

"*4th.*—Started at 7 A.M. 12 crossed a small river, and passed through two small villages; halted at 2 P.M. at Phumrieng, (7) a small village situated inland of the town of Chhaiya.

"*5th.*—Visited the town of Chhaiya. The river is a large, broad, deep stream. We did not cross the river (8) but passed, as I suppose, at the head of it. Latitude 9° 57′ N.

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4. This is likely to be "Carmom" of various charts and maps, although by them the river of that name is placed more to the southward, and Carmom point is about 8° 55′ N. Lat.

5. Crawfurd's Punssin.

6. The Thakham discharges itself, it is said, into the sea by two embouchures; the northern one having the town of Thathong at it, and the southern one Bandon. The Rajah stopped at the place where the river is usually crossed, and where it bears the name of Thakham, though the name of Bandon is some times erroneously given to the whole stream. The Thakham is said to be a large stream, which leads to Pennon, 3 days journey from Phoouga, near Junk-Ceylon. There are numerous islands at the mouth of this river, or rivers, named by Horsburgh and Vallentyn 'Larchin Islands.' Mr. Crawfurd in his map lays down this part of the coast very differently from the authorities above noticed; a reference to the sketch No. 2 will show the points wherein they disagree.

7 Crawfurd's Pumring.

8 Mr. Harris states he did not cross the Chhaiya river. The town is probably, therefore, situated on an arm of the sea, unless the small stream crossed during the march of the 4th be the head of the Chhaiya river. Horsburgh has a place called Patanon on or near the site of Chhaiya, but as Crawfurd has left it out of his map, it in all likelihood does not now exist.

" *6th.*—Started at ½ past 9; at ½ past 2 passed a large stony hill, and at ½ past 4, arrived at our halting place, near Ban-Tharena.

" *7th.*—Started at 8 A.M. crossing a small stream, Khlong Tharena, and at 11 arrived at the sea beach. We passed the mouths of two streams, Khlong Kauthoree and Khlong Punke Doowat; at 4 halted on the sea-shore.

" *8th.*—Pursued our journey for an hour along the sea-shore; we then turned inland; and at 5 passed through a village; at 6 saw a high hill. At 7 arrived at our halting place on the right bank of a large river, Khlong Lang Sewun, on the other side of which is the large village of Lang Sewun. (9)

" *9th.*—Halted.

" *10th.*—At ½ past 7 crossed over in a boat; at ½ past 1, crossed a small stream named Khlong Thakho, and arrived at our halting place, near a village on the other side, called Thakho.

" *11th.*—Started at ½ past 7, and at 2 halted on the right bank of a stream, Khlong Suwi, near a large village named Suwi.

" *12th.*—Crossed the Khlong Suwi at ½ past 9, and at 1 P. M. halted on the right bank of a stream, Khlong Wisai, near a small village named Wisai.

" *13th.*—At ½ past 8 crossed the Khlong Wisai; halted at 6 P.M. on the right bank of the Chhoomphon river, near and below the town of that name. (10)

14th.—Halted. River extremely winding. Mr. Leal made the latitude of Chhoomphon 10° 55′ N.

15th.—At ½ past 7 crossed the Chhoomphon river, and halted at ½ past 5 at Bangsoon.

16th.—Started at 7, and halted at ½ past 3 at the head of a small stream called Pathiu, near the mouth of which is a small village of the same name.

" *17th.*—Halted.

" *18th.*—Dropped down in a boat to the village of Pathiu. Mr. Leal made the latitude of Pathiu 11° 10′ N.

" *27th.*—(Here they were detained until 27th, when,) we left Pathiu at 12 o'clock, and after rowing for three hours, we anchored close to the shore; at 9 P.M. there being a fine breeze, Mr. Leal who took charge of navigating the boat, insisted upon proceeding, and we then set sail.

" *28th.*—Continued under sail all day in sight of land, which appeared low.

" *29th.*—Came in sight of the high mountains called Samroi yot, (12) "three hundred peaks," at the foot of which, at a small village of the same name, we anchored at 4 P. M., to take in water; (13) at 7 P. M. continued our course along the shore where it is steep.

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9 Horsburgh has a place named Penomxin about this place; whether a former town or another name for Lang-Sewun, cannot be said. Crawfurd has this town lower down, though he retains the Islands of Carmom and Saucori as given by Horsburgh.

10 At Chhoomphon the Siamese forces destined to attack the Burmese at Mergui always assembled, and the Governor was entrusted with the duty of watching the Burmese on the coast of Tenasserim, and since the conquest of Tavoy and Mergui by the Burmese, it has become a purely military post. This and the want of population caused by the ravages of war, account for the cessation of that valuable trade, which formerly passed between Mergui and the Gulf of Siam.

11 Horsburgh has a place called Bardia here.

12 *Sam*, three; *roi*, hundred; *yot*, peaks. This is Kœmfer's Jamajata, and the mountains of Pensels of Portugese charts.

13 Near Samroi yot is a Siamese village called Kosi or Cin, which has been variously written Cin, Kieoi Cen. Loubere writes it Cuil, and Kœmfer, Kin.

"*30th.*—Mr. Leal who had a compass and quadrant with him, finding that the passage along the coast would be unnecessarily long and tedious, obliged the boatmen to steer a more easterly course, and direct for the mouth of the Menan. Towards evening a stiff breeze coming on, the boat, which had no keel, could not keep her course, and was driven to leeward until 10 P. M., when she got aground on the mud flats between the mouths of the Thachise and Menan rivers.

"*31st.*—Got off the flat easily at 6 A.M.; between 8 and 9 entered the Menan, and shortly after anchored at the foot of Paknam.

Extracted from WILSON'S *Burmese War.*

"The court of Siam having consented to release certain Burman prisoners, it was thought advisable to send them back in charge of some confidential person; accordingly the first detachment, consisting of between five or six hundred persons, proceeded under the superintendence of Mr. Leal.

"The party left Bangkok on the 13th February 1826, in six junks. They sailed from the bar on the 23rd, and on the 1st March, reached Bangnarom, a place on the west coast of the Gulf of Siam, in about latitude 11° 50′, from hence the route proceeded overland.

"The first day's march was, in the early part, over an indifferent road, but the greater part was good, with pools of water at different places; the second was also over a good road, and terminated at a place where it branched off in two different directions, the right leading to Bangthophan, the left to Mergui, and distinguished by two large trees, one on the Mergui road, marked with two large crosses, and the other on the Bangthaphan road, with four.

"On the third day's march, the people suffered much inconvenience from want of water, not a drop of which was encountered. Early on the morning of the fourth, water was met with. The road here again divided into two, one leading to the E. (W. ?) the other S S.E. (S.S.W. ?) the latter terminating abruptly, at a short distance, the former continuing to Mergui, and marked by a large stone.

"The fifth day's march, came early to the foot of the Kasom mountain, along the skirts of which ran a small rivulet; the mountain was steep, and the ascent and descent occupied the greater part of a fatiguing day. By 9 o'clock on the morning of the following day, the party arrived at the boundary of the Burman and Siamese states, marked by three tamarind trees; the place is said to be called Sing-khow-the-pe. In the afternoon, they halted at a pagoda, where the Burmese offered their adorations.

"The next day's march continued throughout the day along a good road to the banks of the Tenasserim river, where the party constructed seventy-five bamboo floats, for the purpose of completing the journey by water. According to impressions received on the spot, the river here was thought to be the main branch, but, according to the assertions of the more intelligent among the Burmans, it is but a branch of the Tenasserim river. The passage down the stream was very tardy, being much obstructed by trees in the river. On the afternoon of the third day a fishing boat was seen, and dispatched to Mergui, where the party arrived on the fifth day of their voyage, the 15th March.

"The party, allowing for the detention of three days at Bangnarom, and of the greater portion of the fourth and eighth day's route, whilst engaged in ascertaining the direction of the road, and constructing bamboo floats, was about sixteen day's passing from the bar of the Menan to Mergui, but their progress was necessarily slow, owing to the number of women and children, and we understand, that the Kasoon hill might have been crossed at a more easy pass. There are two instances on record of the journey between the old capital of Siam and Mergui, when the French occupied it, having been made in ten days, and on one of these occasions, the party consisted of prisoners in chains, escorted by a detachment of Siamese soldiers.

"The late king of Siam is said about thirty-three years ago, to have constructed the military road from Bangnarom towards Mergui, for the purpose of invading the Burmese territories . the road is described to admit elephants, and even wheel carriages. But in former times there appears to have been a carriage road between the Gulf of Siam and Tenasserim, as, in a letter from the Bishop of Tabraca, from Siam in 1761, we find the following passage: "Jáienvoyé M. Martin (à Merguy) Il alla jusqu'a Piply, ou l'on a coutume de quitter les batteaux, et y, attendit inutilement, les charretes, pendant trois semaines." Piply is the Siamese Phriphri, a large town on the west coast of the Gulf of Siam, in about latitude 13° 20′, and once the capital of the Siamese Empire.

"From Mergui, Mr Leal proceeded to Tavoi, by sea, and was thence sent back by the Commissioner with instructions to proceed to the Siamese station, on the other side of the peninsula, at Chhoomphon, to deliver a number of Siamese prisoners, and receive charge of the Burmese still detained there; he accordingly started from Mergui on the 23rd March, with twelve Burman boats, and four others, containing one hundred and nine Siamese prisoners, and reached the mouth of the Pak-cham river on the 25th. He rowed up the river on the following day, and arrived at Pak-cham on the afternoon of the 26th. Mr. Leal describes the river as of considerable size. The Pak-cham river is separated from the Chhoomphon river by a very small interval of level ground, and it is said that during the spring tides the two rivers often unite. The former is, throughout, broad and deep, and the latter flows in a sandy bed; both are free from rocks. From Pak-cham Mr. Leal proceeded across the country to Chhoomphon, in the vicinity of which he arrived on the afternoon of the second day. Having concluded his business, he returned by the same route to Pak-cham."

From CAPTAIN LLOYD *to the Officiating Secretary.*

"When I wrote to you before on the subject of Captain Macleod's map of the Mergui province, which had been referred to me, I suggested that "Champhon," situated on the Gulf of Siam side, should be brought more to the southward, so as to preserve the same relative position with respect to the Pakchan, corrected by my survey, as it had with that of the old maps, which place them nearly east and west of each other, and is in accordance with the best information we have; but in suggesting this, I was entirely ignorant that any observations had ever been made for the latitude of "Champhon," which appears to have been the case by a Mr. Leal; who this gentleman was, or what were his pretensions as an observer, upon which depends in a great measure the confidence his observations are entitled to, is unknown; it appears, however, that he had a quadrant, and Captain Macleod very justly remarks, that it is doubtful if with such an instrument he could take in the sun's meridian altitude, and if not, what method did he adopt to obtain the latitude? and what had he for an artificial horizon? Until we have the position of Pakchan, as well as Champhon accurately determined, (the former may be out four or five miles, as it is merely laid down from a sketch by Dr. Helfer, who had no observations), I shall be disposed to consider their present positions as only an approximation to the truth; at the same time my opinion is, that "Penomoxin," or "Penonper" of the old charts, is "Champhon" of the Siamese, and will be found to be (I mean the mouth of the river) in about the latitude which they assign to it, or 10° 40′ N. But this interesting question ought to be set at rest; it is of no use, sending such men as Mr. George, "the Master Attendant at Mergui, who although he has travelled two or three times between Pakchan and Champhon, can give you no more idea of the direction and distance of the one from the other than, that he left one place at such an hour on one day, and arrived at the other, the same or the next day at such an hour! Beyond that, he has no more idea of distance, or conveying information, than a common Burmese, even if so much. I think with Captain Macleod, that it is very probable the Champhon river takes a direction different from that laid down. Forrest says, the paterage from one river to the other is six hours. Horace Wilson, in his notes on Mr. Leal's journey, says the rivers are separated by a very small interval of level ground, and it is said, that during the spring tides, the two rivers often unite."

Note on the Limboos, and other Hill Tribes hitherto undescribed. *By* A. CAMPBELL, Esq. *Superintendent of Darjeeling.*

The Limboos form a large portion of the inhabitants in the mountainous country lying between the Dood-Koosi and the Kanki rivers, in Nipal, and are found in smaller numbers eastwards to the Mechi river, which forms the boundary of Nipal and Sikim. In still fewer numbers they exist within the Sikim territory, as far east as the Teesta river, beyond which they very rarely settle. In Bootan they are unknown, except as strangers.

The word "Limboo" is a corruption, probably introduced by the Goorkhas, of "Ekthoomba," the correct denomination of these people; and is generally used by foreigners to designate the whole population of the country between the Dood-Koosi and the Mechi, except such as belong to other well marked tribes, such as the Moormis, Lepchas, Bhotiahs, and Purbuttiahs. The division of Purbuttiahs is into the "Khas" Muggurs, and Gurungs, all of whom are Brahminical in religion; the Moormis, Lepchas, and Bhotiahs are Bhuddistical. In the generic term "Limboo," are included people also known as the Kerautis, Eakas, and Rais, but such is the confused notion among the people themselves of the real nature of the differences which have led to these several denominations, that they are often used synonymously with the word Limboo, and with good cause, as the appearance, habits, and religion of all are very much alike, and as all intermarry, and are not divided by caste. The Kerautis are mentioned in the Purans as a warlike race of mountain Mlechas; the Eakas are distinguished from the Rais merely by their habitat, which is confined to the lower and central ranges of the mountainous tract between the Arun and Konki rivers; the Limboos consider themselves to be the aboriginal inhabitants of the country they now occupy, at least they are satisfied that none of the neighbouring tribes have any claims of preoccupation, but they are not agreed among themselves, on the point of nativity. The majority assert that from time immemorial, the tribe has occupied the valley called "Tambar Khola," at the head of the Tambar Koosi river, and that they have no grounds for ascribing their origin as a distinct tribe to any other country. When closely questioned to account for their existence in these mountains, among races differing from them in language, religion, and habits, a few among them state that they have heard China mentioned as the land whence they emigrated, but from what part of that vast empire, and in what age of the world, they are quite unable to give any idea. It is doubtless that they belong to the great Mongolian family of the human race. This is clearly evidenced in their form of features, absence of beard, and yellow colour of the skin, but to which of the numerous divisions of this family, to be found between the Himalaya mountains and the Yellow Sea, they especially belong, and are an offshoot, it remains for the comparisons of their language and their religion, with those of other known or unknown Mongols to decide. Although they have been long in close contact with the Hindoos, there is not any perceptible mixture of the blood to be observed, in more regular features, or in the absence of the small low nose, and presence of the beard. That they have mixed much, and for long, with the Lepchas, is evident enough from the number of persons to be met with, whose tribe cannot be settled except by a very practised observer, or by reference to the individuals themselves; and in more recent days, during the last twelve years, since the great migration of the Lepchas from Sikim to the westward has been in progress, the mixture of these two tribes has greatly increased in frequency. The Limboo is a very little taller in stature than the Lepcha, somewhat less fleshy, and more wiry in the limbs, as fair in complexion, and as completely beardless. He is scarcely ever ruddy as the Lepchas sometimes are; his eyes are if any thing smaller, and placed more to the front than the Lepchas; and his nose, although somewhat smaller, is rather higher in the bridge than that of the Lepcha. He wears his hair long, but does not plait it into a tail; has no fancy for bead necklaces; wears a Kookri instead of the Bān; and wide trousers and a jacket, or Chupkun, in preference to the robe and long jacket of the Lepchas. To a person used to closely observing the different people of this neighbourhood, it becomes intuitively easy to recognise a Limboo from a Lepcha by his features and figure alone; but as no man can describe even his horse or dog, and far less his sheep and camels, leaving out the colours, so as to render them cognizable to another person, neither is it easy to give the differences by which a Limboo is recognised from a Lepcha, in such a manner as to render them obvious to strangers.

At the period of the Goorkha conquest of the country east of the Arun river, the Limboos held a great portion of the country now inhabited by them in feudal subordination to the rajas of Beejapoor and Mukwanpoor. They were divided into many small chiefships, and were represented at the courts of these rajas, not Limboos themselves, by Limboo chiefs of note, who held the office of Chountra, or prime minister, either hereditarily, or by election of the rajas. In each chiefship it was the custom to maintain a fort or stronghold of very difficult access, in which the chief generally lived, and to which his chosen followers repaired for its defence during a feud with a neighbour, or dispute with the lord superior; it was to these strongholds that the Limboos retired during the incursions of the conquering Goorkhas, and in many of them that they are said to have displayed the most heroic bravery against the common enemy of the indigenous mountaineers.

The accounts now given of the resistance of the Limboos to the Goorkhas, speak well for the former as soldiers, and innumerable defeats over the latter are related as having preceded the establishment of their supremacy. Foremost among the Limboos, as brave men, are the "Pheda Hung;" they held their stronghold of Yangrong against a superior Goorkha force, for nearly a month, and did not yield until nearly the whole clan fell in a succession of assaults hand to hand with the Kookri.

In proportion to the praises bestowed by the Limboos on the gallantry of their own tribe, are their execrations against the brutal excesses of the Goorkhas when victorious. It is said to have been their custom to put all the aged of both sexes to the sword; to carry into slavery the youth and able-bodied; separating mothers from their children, and ripping open the bellies of women with child, who were unable to march with their columns. These statements are probably exaggerated ones, although they are very similar to those made by William Fraser and other British Officers of the conduct of the Goorkhas in their conquest of the Sirmoor and Gurhwal Hills, where the recency of the occurrences previous to the war with us, rendered it more easy to ascertain the truth than it is now. Whether to the remembrance of their former sufferings, or to the irksomeness of the Hindoo laws of Nipal, bearing as they do on the beef-eating, casteless, habits and propensities of the Limboos, or to both combined, I know not; but it is certain that they are not much attached to their Goorkha rulers, and that they do not possess in connexion with them any of the strong national spirit, which so markedly characterises the Khas and Mogors, or real Goorkhas.

It has been shewn that in former times the Limboos were a warlike race, and a good deal devoted to arms, although subjects of Nipal, and this way disposed, they do not strictly speaking belong to the military tribes of modern Nipal.* They are however found in the ranks of the Nipalese army at Cathmandū, and in the Provinces; but I am not aware that they are represented in any of the higher grades of civil or military office. Their principal occupations now-a-days are agriculture, grazing, and petty trading; but referring to their former history, they consider themselves a military race, and desire others to regard them as people who from the pressure of adverse circumstances,† are temporarily driven to these ignominious employments, but who are ready, on fitting occasion, to resume the sword as their more proper and desired means of livelihood. That the Limboos are disposed to a military life, may be inferred from the circumstance that fifty of this tribe from Nipal have been enlisted at Darjeeling this season; that the Lepchas are averse to such a life, may equally be inferred from the fact that there is not one individual of this race under arms at the place. The subdivisions of the tract inhabited by the Limboos are two—"Kirant Des," extending from the Dood-Koosi west, to the Arun river east, and the Limbuan country of the Limboos from the Arun west, to the Konki river east.

The Limboos, using the term in the extended sense already noticed, are ranged under two great divisions, viz. "Hung," and "Rai,"‡ and subdivided into the following families or clans :—

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* See Mr. Hodgson's Account of these tribes in the As. Soc. Journal.

† The Khas, Mogors and Gurungs furnish the great bulk of the Nipal Army, and are probably preferable as soldiers to the Limboos.

‡ Are these the original "Huns," so long sought for in the mountains of Asia by Mr. Csoma de Koros?

Enumeration of Limboo Tribes.

Hungs.

Ling dum chung*
Pheda hung
Locktum chung
Chung bung hung
Ilam hung
Chinglenden hung
Yunge hung
Shamba hung†
Maboo hung
Hembi hung
Songmi hung
Mamben hung
Muringlah hung
Seringdoomyung
Tegim hung
Pheká hung
Mangmoo hung
Sāling hung
Lābōōng hung ‡
Legua hung
Song sungboo hung

Rais.

Tilikchum raí
Kembang raí
Phagoo raí
Luksum raí
Sirma raí
Kewa raí
Eaka raí
Kumboo raí
Chamlingia raí
Sang pungia raí
Pheka raí
Shebá raí
Eaktin raí
Kebang raí
Wesing raí
Nembung raí
Chemboojung raí
Yougia raí
Kambung raí
Poutak raí
Kinding raí
Paloonga raí
Pooroonboo raí
Limkum raí
Phapoo raí
Samling raí
Koojung raí
Khamba raí

Religion.

It is well known that the religions of Brahma and Buddh are the prevailing ones throughout the Himalaya, from the Sutledge to the

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* Ilam in Nipal, and Phougiari in Sikim.

† Tambar Khola, the especial habitat of this clan.

‡ Tambar Khola.

Burrampootur; and that Islamism has not made any progress in those regions up to the present time. Hindooism is probably the more recent of the two, but I am not aware that it has been settled what form, or forms of worshipping the Deity were the prevailing ones previous to the introduction of Buddhism or Brahmanism, nor is it settled which of the numerous tribes and races now found in these mountains, have the strongest claims to aboriginal antiquity.

It is probable that those have the best claim to the distinction, who even down to the present day have withstood the pressure of Hindooism and Buddhism, exercised through wily and educated Brahmuns on the one hand, and meditative tolerant Lamas on the other. How all of these tribes are distinguished, and where located throughout the vast extent of mountains indicated, I know not; but among them, must be included the subjects of this note, and the Haioos, an allied race who live among them, and more westerly towards the valley of Nipal.

For a long time it was my impression, carelessly assented to, that the Limboos were Buddhists. This arose first of all from observing the bad grace with which these people submitted to the restraints of Hindooism so rigidly enforced in Nipal, where nevertheless, they frequently are to be met with, professing to follow the Brahmins, when they become ambitious of identifying themselves with the rulers of the country, and the religion of the state; and latterly, from the number of these people who in this neighbourhood, where Buddhism is ripe, seemed to follow with devotion the Lamas of the Lepchas and Bhotiahs. The real fact however is, that they do not belong to either of these religions, but as the Hindooism of Nipal suiting itself to the wants of the Mlecha world around it, readily admits within the pale all who practice even in a slight degree the outward forms of purity, and as the Lamas are entirely catholic in their principles, it is not uncommon to find Limboos passing for Hindoos, where Brahmins are numerous; and very common to find them shewing all becoming respect to the Lamas, and giving their best attention to the doctrines they inculcate. The transition from their own religion, or form of worship more strictly speaking, to Buddhism, is an easy one. Altogether free from the trammels of caste, they have not to sacrifice a single habit or practice in qualifying themselves to give their readily accepted adhesion to it, and as their own gods do not seem to be jealous ones, they without alarm readily adopt and repeat the simple invocation,* which is all that the ignorant have to shew as their stock, whence they derive their claim to be considered good Buddhists.

It is easier to settle what religions the Limboos do not belong to, than to give a name to the one they practice. They believe in the existence of the great God, who is called "Shâm Mungh," and worship other deities named Nihang Mo, Takpoopa, Hem-Sung-Mung, Teba-Sum, Hem-Sum, and Mungul Mu. Mungul Mo, is a preserving god; Hem-Sung-Mung, a destroyer; Teba-Sum, is the god of wisdom and knowledge; Sham-Mungh, the god of the universe; and Hem-dum, the household god; the counterpart of the Kool Deota of the Hindoos. They do not build temples in honour of these deities, nor make unto themselves graven images or other idols, but they propitiate the gods through a wretched description of priests, and by sacrifices of living animals. The usual form of worship consists in making small offerings of grain, vegetables, and sugar-cane, and in sacrificing cows, buffaloes, pigs, fowls, sheep, and goats, to one, or any and all of the gods, and in eating the flesh afterwards, or as it is pithily expressed by themselves, in dedicating "the life breath to the gods, the flesh to ourselves." The usual places of sacrifices are merely marked by the erection of bamboo poles, to which rags previously consecrated, by having been offered up, are tied; these are generally placed for convenience at the road sides, and a cairn of stones collected at their base. When it suits a Limboo's means to make a sacrifice, or he is otherwise devoutly disposed, he performs it just as readily at a shrine of Kali or Shiva as to Nihang-Mo. The gods above named, with the exception of "Hem-Sung-Mung" have beneficent attributes, but there are evil spirits in the imaginary world of the Limboos, as in that of other people, who require peculiar management in warding off their caprices. This task gives frequent occupation to the Bijooa and Phedangbo, who are equally the clergy and necromancers of these ignorant people.

The Bijooas are wandering mendicants peculiar to Sikim and the eastern parts of Nipal, where they are cherished and propitiated in a less or greater degree by the whole population. They are wholly illiterate, do not teach any doctrinal scriptures, and are supposed to minister to the evil spirits, and malignant demons; they travel about the country dressed in the purple robe of the Thibetan Lamas, with broad-brimmed hats, carrying in their hands the revolving hour glass-like apparatus of the Buddhists, the name of which I forget, but believe it to be symbolical of time, muttering prayers and incantations to its movements. They sing, beg, dance, cast out devils, and prescribe medicaments to the sick; attend at births, marriages, feasts, and funerals; and are held in considerable awe, if not in veneration. "The Bijooa's god is not a beneficent one; when he curses you, his words are sure to come to pass; when he blesses, there is a real blessing attending it; you never should allow him to leave your door dissatisfied, for surely something bad will happen to you, whereas, if he leaves it contented, you infallibly grow fat, and remain contented." Such is the information seriously given regarding these mountebank priests by the simple people who feed and propitiate them in the belief of their mysterious powers.

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* Om Mane Paimi hoom.

The "Phedangbo" is the especial priest of the Limboos, and is entirely disregarded by the Lepchas, who are not indifferent to the powers of the Bijooa. He holds converse with the gods, officiates at sacrifices, deaths, and marriages, and is also unlettered. The calling is generally hereditary. Bijooas and Phedangbos marry, although there is no necessary separation of the priesthood from the laity, by reason of birth. "In a family of six or eight sons, one is generally a priest; this one fancies he has had—and when he says so he is believed to have—a call to the sacred office." In fact, he feels within him that he can propitiate the gods, therefore he becomes henceforward a Phedangbo.

Marriages.

"When a Limboo desires to have a wife, he looks about and fixes on a young girl who takes his fancy, then he sends a friend with two or four rupees to her father's house to gain his consent to the union, and arrange preliminaries of the sum of money to be paid, and the time of performing the ceremony. When these are concluded, he sends the remainder of the purchase money, which altogether rarely exceeds ten or twelve rupees, and proceeds to the ceremony accompanied by a "Phedangbo" and some one carrying a couple of fowls. The young pair being seated side by side, are sworn to connubial chastity by the priest, who now places a hen in the hands of the bride, and gives the cock into those of the bridegroom. A plantain leaf is laid on the ground between the animals; the priest repeating some gibberish, cuts off the cock's head first, and next the hens, directing the streams of blood on the leaf, where they intermingle. If the blood spreads into fanciful shapes, or flower-like patches, it is an omen of good luck and happiness to the parties, if into large blotches, it betokens evil. This ceremony being ended, the friends of the parties are feasted, and when it has previously been agreed on, the bride is carried home. The poverty of the bridegroom, however, often renders it necessary for him to remain with his wife's father for sometime, to whom he becomes as a slave, until by his work he has redeemed his bride. A poor man generally gets over all preliminaries, as well as the marriage ceremony, in one day. It costs a richer man a week. The Limboos marry with the Lepchas and also with the Moormis; the latter, however, is objectionable, but is not followed by any other inconvenience.

Births.

The Phedangbo is called in at births, if parents can afford him a dinner; he examines the infant carefully, and then pronounces its destiny, sacrifices a fowl or kid, and invokes the blessings of the gods on the young stranger. The parents name the infant on the third day after birth.

Children born out of wedlock. and the produce of Limboos and Lepchas, are called "Koosaba." Boys become the property of the father on his paying the mother a small sum of money, when the child is named and enters his father's tribe; girls remain with the mother, and belong to her tribe.

Deaths.

Just as the vital spark has taken its leave of the mortal tenement, it is usual among Limboos, who can procure a little powder, to fire a gun; the report is supposed to give intimation of the event to the gods, and to speed the soul* of the deceased to their keeping. They burn the dead, selecting the summits of mountains for the purpose, and afterwards collect and bury the ashes, over which they raise a square tomb of stone, about four feet high, placing an upright stone on its summit.

On the upright stone is engraved a record of the quantity of largess distributed at the funeral of the deceased; this inscription is either in the Dev-Nagri, or Lepcha character, according to the comparative facility of procuring an engraver in either of these characters. It is an act of virtue in the relatives to give largess; but it does not appear to be considered of any efficacy to the soul of the departed. The Limboos do not make offerings, or sacrifices for the dead, nor have they any belief in the transmigration of souls. They mourn the dead by weeping and lamentations at the time, and by avoiding merry makings, and adorning the hair with flowers for a month or two.

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* "Hungsa," synonymous with life and breath.

Houses.

Their houses are built of stone raised over platforms of the same, from two to four feet from the ground ; they rarely consist of more than one apartment, and are roofed with grass thatch. In all respects of neatness and comfort, their dwellings are far surpassed by the roomy and picturesque houses of the Lepchas. Like the latter however, they avoid hill tops for their residences, and either locate themselves in vallies at great elevations, or along the hill sides, at elevations of 2, 3, or 4000 feet above the sea. The Limboo language has no written character, nor has it, so far as I can judge from attending to its pronunciation, any similitude to those of the Lepchas, Bhotiahs, Mechis, and Haioos, and it is altogether free from any connection with the Parbuttiah, which is a dialect of Hindi origin. It is more pleasing to the ear than the Lepcha tongue, being labial and palatal, rather than nasal and guttural.

The comparison of the various languages spoken in this neighbourhood one with the other, and all with the Thibetan and Sanscrit, as well as with the numerous dialects of the countries bordering on Assam, and with the language of the Dhangurs, Coles, Goonds, and Bheels, offers a tempting subject to philologists, and will probably reward the labourers, by enabling them to throw some additional light on the small knowledge now possessed of the races who peopled India previous to the advent or rise of the Hindu religion.

The following are the dialects of these respective people to which attention may without much difficulty be directed at Darjeeling—

The Lepcha, Limboo, Bhotiah, Haioo, Moormi, Mech, Dimal, Garrow, Tharoo, Dhunwar, and others which I am unable to particularise from memory, although at one time possessed of written memoranda regarding all the polyglot tribes of the Nipalese Turai and Morung, a tract of country which I traversed in 1839, and which contains a most extraordinary assemblage of outcastes from Hindooism, yet ununited under any form of religion, unless a devotion to a few superstitious rites, propitiatory of evil disposed spirits, be considered to constitute a religious union.

Limboo Vocabulary.

above, tángh
aged, kapoba
air, shámí
all, kerre
arm, hóók
arrow, thōōng
ashes, kāssoo
ask, V, shelāsste
axe, tontí
back, N, ar
bad, menzejábá
bag, shōōwa
bamboo, phá
bark, V, ho
bark, N, shinghoorí
barrel, towá
bead, eĭche
bear, N, māgyeu
beat, sheray
beautiful, noghá
bed, netuádry
bee, leem
bell, pongyay
belly, shápoo
bird, mōōyava
bitter, kí
black, mákloh
blanket, nāmboo

blood, lakshokpa
blue, mukloh
board, shingophreu
boat, kombe
body, yām
bone, kúlúngjí
book, sápla
bow, N, lí
boy, henja
bracelet, shiringma
branch, kōōneke
breast, loongma
bridge, phoong
broad, yomba
brother, amphoo
younger, nisha
buffalo, shángwá
buy, meuloong
candle, tiáloo
cannon, potang
caste, keloongji
cat, miongma
cheek, nedengbá
child, oong negwá
city, pang yek
cloth, tek
cloud, ká mí
cold, choongsi

comb, takomah
come, tángay
copper, támbá
cotton, takay
cough, humámá
country, lájay
cow, yepi
cubit, chamkoo
cut, V, cheptay
dance, V, langmá
daughter, meuchuma
day, koolen
deaf, nátákpie
dear, guáktee
deer, keliba
die, shray, B,
dig (earth,) kamtoye
dog, kochoo
draw, oōkay
drink, V, toongay
dry, kohedia
eagle, negurá
ear, neko
earth, kámbekmá
east, námgam
egg, wáteen
elbow, noksōōmbá

fight, kemá
find, komah
finger, hookeja
fire, may
fish, guá
flesh, karay
flower, phoong
fog, kámay
fool, kengungba
foot, leugyetimba
forest, tamphoong
fruit, kooshay
full, koodeen
garden, kame
ginger, hámbe
goat, menda
god, shám
gold, shamiang
good, note
grass,
great, yomba
gun tumok
hail, phoh
hair, tugek
hand, hook
hard, chimjoomlo
hear, kepshoobi
heavy, leep
heart, ningwá
heaven, shanglumdung
hell, tangshukpá
hen, wáh
here, kotna
high, tank
hill, toksong
leg, phak
[illegible], koodang

horse, on, L,
hat, nāmsay
house, terá
hunger, shilák
husband, meet
I, eruga
iron, phenjay
kill, V, sheray
king, hung
knife, kurdá
knee, khorá
ladder, preng
lamp, dío
laugh, yemá
lazy, ke shoobá
leaf, telá
lean, chookpá
leap, hochoom-lokpa
leech, lukphet
left, pheuchanga
leg, poklám
leopard, ke bá
lie, imshí
little, chookpá
load, gok
loom, chiriketokpa
long, kembá
louse, shee
low, yeo
maid, menchia
maize, mákee
man, namní
many, yeōlik
marry,
mat, lompay
middle, kooloomio
milk, hidno

monkey, chobá
mouth, moorá
moon, lhábá
mother, amó
mouse, shoobá
mouth, lebá, L,
mud, legua khám
nail, nung
name, kōming
near, kōyeo
neck, shurrá
needle, sumett
net, kioong or chur
new, kusong
night, sendik
north, thó
nose, nebáú
oil, mingay
old, koo drong
onion, mákó
order, no word
other, egi umbá
ox, beet
paddy, yāh
paper, no word
peacock, myoongjay
pine-apple, por shay
place, la jee
plantain, telā she
plough, no word
poison, ning, L,
potatoe or yam, kay
powder, (no word)
quick, hurra hurra
rain, weehi
ratan, shi
read, neeray

red, he tamba
rice, shiáh
right, phenchung
ripe, doomshay
rise, bōghay
river, yeomba choa
road, lum
rope, tuk pā
root, shāp
roof, him tong
round, kooshay
salt, yim
sand, yeu kā
scissors, kuturna
seed, yeálí, L,
shield, koh
shoes, no word
shoulder, phok tang
shut, sāk te
sick, took
silver, yāng
sin, minobā
sister, noosa-noonchema
brother, noosa-empercha
sit, yoong-e
scratch, somā
slave, henja
female slave beecha
sleep, mig yeu
small, tanga
smith, thembā
smoke, me koo
snake, wá seh
snow, nāh
soldier, no word
son, koosa
south, yeō
speak, báp má
stand, ebe
star, sohor
stone, lōōng
straight, don dop bá
strike, hipar
strong, tom toomba
sun, nam
sweat, so-al
sweet, limba
tail, sheem
thief, kootribá
thigh, poklam
thin, chookbá
thou, kenne
thread, kee
thumb, koodom
thunder, kāmian
tiger, keba
tobacco, shirkā
to-day, eu
to-morrow, tāndu
tongue, ullee
tooth, hā
tree, shing
true, koochā
turban, pake
tusk, hākemba
umbrella, (no word)
uncle, umpunga
under, yeo
unripe, mudoomsin
valley, tompoya
village, bang pe
vomit, pe shoo
walk, lang, kekma
war, tokmā

warm, mowah
water, choā
wax, mālim
we, annigay
weak, mun toomba
widow, bidooa
widower, rāndā
weave, lāngtuk
well, N (no word)
weigh, tāngu
west, nāmtā
what is it? hene go
where, atte lajee
whistle, V, thuriyok
white, pho dāng be
who, Eng. oh
wind, N sāmet yemba
woman, menchima
wife, āmett
wood, shing
word, bān
world, yeolik lājee
worm, támboo
worship, mangjokma
yam, ke
year, toong be tik
yellow, peyor bu
yesterday, anchen
young, táugmen

Numerals.

one, teek
two, netchí
three, soomchí
four, leeshí
five, náshí
six, tookshí
seven, noshí
eight, etchí
nine, phangshí
ten, thíbong
twenty, níbong
thirty, soombong
forty, libong
fifty, nábong
sixty, tookbong
seventy, nobong
eighty, etbong
ninety, phang bong
hundred, thíbong bong

The Haioos

inhabit the central and lower ranges of the mountains in eastern Nipal, between the Arun river and the Konki. The Konki river runs under Ilam Gurhy, and is only three days journey west of Darjeeling. They are mingled with the Eaka division of the Limboos, but always live in clearances and villages exclusively their own. Their language is different from that of any other people in this neighbourhood, so is their religion and all their habits. They keep strictly to themselves, do not marry with any other tribes, and rarely associate with other people. By the Goorkhas and all Hindoos, they are treated as outcastes; they cultivate in the vallies of the lower hills, but have their houses at such elevations above them as insure them exception from malaria. The above is the small amount of information regarding these people which I have gained at this place from the Limboos and Lepchas, who although constantly seeing these people, do not trouble themselves much about them. As yet the Haíōōs have not found their way to Darjeeling, although our proximity to their country, will probably ere long add them to our visitors.

The following notice of these people, is extracted from memoranda made at Cathmandu, where I once only saw a few of the race. Hamilton mentions the Haioos in his account of Nipal. "September 9th 1835." "Yesterday being the great day of the Indra Jattra festival we" (the Residency party) "paid our annual autumnal visit to the durbar at 8 P. M. The principal streets of the town were well illuminated, and crowds of cleanly dressed people of all callings, castes, and ages thronged the avenues to the palace. Groups of Newari dancers were stationed at short intervals in the crowd, picturesquely dressed, and suitably masked to represent gods, demons, warriors, and comic characters, and every now and then the dancing ceased, and the performance in pantomine of scenes from the Ramayun and other Hindoo legends, was recommenced. After taking leave of the Rája, we repaired with the minister and some other chiefs to Bussunthpoor, the ministerial residence and place of business, to witness a nautch performed by a strange tribe of hill people, recently arrived from the eastward, denominated Haioo. The nautch was indeed a singular one, and novel; about thirty males and as many females were drawn up in line, as closely packed as possible, the first a man, the next a woman, and so on alternately, not standing side by side but back to belly, and all holding on to each other by throwing forward the hands and grasping the arms of the persons in front. The column thus formed, and preceded by half a dozen men beating drums and cymbals, and shouting in a barbarous dialect what was said to be a metrical lament, moved slowly in a circle, nodding and keeping time to the music. In this fashion, and so closely packed that the circle of sixty individuals had the appearance of a machine with a row of heads and feet set in motion, did they revolve and mourn for an hour.

"The dress of the women was romantic enough, and very becoming; a tartan jacket reaching to the waist, and fitting close to the bust, a short, white, neatly plaited petticoat, reaching to the calf, the hair raised into a tiara on the crown, and surmounted by a plume of peacock feathers, the neck and arms loaded with shell and brass ornaments, and the entire face tattooed in blue, yellow, and red arches, and other fanciful devices. The men were dressed for the occasion in trowsers, chupkuns, and large turbans of white cotton.

The physiognomy of this tribe is rather of the Mongolian cast, the bridge of the nose is not perceptibly raised, the cheek bones are flattened and very high, the forehead narrow; in stature they are short, averaging about five feet four inches. Their language is peculiarly their own, but many of them speak the current Purbuttiah. They bury their dead, and worship Rawun, the Raksha king of Lunka, and him only. The dance and dirge, are lamentations for the death of Rawun. They describe themselves as having come originally from Lunka in great numbers, not being content to remain after the defeat of their king by Ramchunder; that they had at the time of their migration upwards of 300 volumes of sacred writings, connected with their peculiar creed, which were gradually destroyed and lost, until now, when they are without any record of it; that they remained for sometime in the Dukhin, whence they journeyed on to Semroungurh in the days of its glory; and that, lastly, but a long time ago, they reached the hills, their present abode.

The Moormis

are a very numerous tribe, found in all parts of the Nipal mountains, from the Gunduk river twenty miles to the west of Cathmandu, to the Mechi; whence, in smaller numbers they are to be met with in the Sikim country, as far east as the Teestah. The great bulk of this tribe, however, is to be found between the valley of Nipal and the Dood Koosi. They are altogether a pastoral and agricultural people, rearing flocks of sheep and goats at great elevations near the snows, and cultivating at the greatest elevations capable of producing Indian corn and Murwa, their staple grains. They settle on the mountain tops at elevations of from 4 to 6000 feet, living in cottages built of stone and thatched with grass. They are divided into several families or clans as follows,—

Mooktan, Pakreen, Shengar, Yeunjan, Thokar, Bomjan, Roomba, Gyapaka, Theng, Ghesing, Doomjan, Mepchun, Guurba, Bell.

The Moormis are Buddhists, and follow the Bhotia and Lepcha Lamas, as well as those of their own tribe. It is necessary for the latter, however, to have been educated at Lhassa, or at some other Thibetan College, ere they gain much respect among their own tribe. The Moormi priests are not restricted to celibacy. The language of the Moormis is, I believe, a dialect of the Thibetan, although the Bhotiahs and Moormis cannot converse in it. The only written language known to the Moormis is that of Thibet, in which their Lamas read the sacred scriptures of Buddhism; they bury the dead on the mountain tops, raising tombs of earth and stone over the graves, and occasionally engrave the name of the deceased in the Thibetan characters on slabs of stone laid into the erection. They are decidedly a Mongolian tribe, and certainly the least handsome of all the mountaineers of this part of the Himalaya. They are, however, a very powerful and active people. Their standard of stature is taller than that of the Lepchas and Limboos. They are not so cheerful as the Lepchas, having a good deal of the gravity of the Bhotiahs, but they are good tempered, and altogether free from prejudice to strangers. Indeed this is a marked feature in the character of all the people of these mountains, all jealousy and prejudice in this respect, being confined to the rulers. The Moormis are not admitted into the ranks of the Nipal army, being considered an unmilitary people; as ammunition carriers, klassies, and gun-lascars, however, they are in request. They do not seem averse to take up arms, as a few have enlisted into our service at Darjeeling, but their favourite pursuits are grazing and agriculture. In one respect the Moormis are a very interesting people to those who desire the prosperity of Darjeeling, and to see its waste land cleared and inhabited; their custom of living and cultivating at elevations nearly as great as this place itself, point them out, above all others, as the most useful settlers. The Lepchas do not object to temporary sojourns at elevations equal to Darjeeling, but they never establish themselves permanently at such. The Moormis and Gurungs prefer elevations of 6000 feet to any others, the Limboos and Lepchas, those from 4000 to 2000 feet; while the Haioos choose the lowest spots of the vallies beyond the nfluence of malaria, and even brave this with impunity, derived from habit. For the malarious Morung, which skirts our mountains towards the plains, the Meches and Dimals are the local people we have to look to as settlers, and from a distance the Dhangurs and Coles, who are also proof against malaria.

Moormi Vocabulary.

house, teem
cow, mih
head, tho-bo
eye, mih
nose, na
mouth, soon
arm, ya
hand, promji
chest, koo
belly, pho
thigh, bulli
foot, bulliphá
fire, me
water, kim
snow, khug
stone, yeoong
mud, sabra
man, mhi
woman, muring
boy, kola
girl, chamey
father, ābā
mother, ami
brother, kroon
sister, aughá
soldier, (no word)
smith, (do.)
river, shiong
mountain, kung
valley, kunjung
bridge, chám
road, kiam
tree, thoong
wood, shing
root, thoongla
leaf, lapte
branch, til mi
bamboo, putáp
ratan, kreh
horse, thá
goat, rá
sheep, kew
rice, mlá
flour, prah
ghee, murh
salt, chúja
yam, semeh
oil, keugoo
murwa, sanga
paddy, soon
iron, phái
silver, mooi
gold, mir
copper, sungbo
gun, toomuk
arrow, meah
bow, dulli
kookri, kojá
candle, nung sul
book, keoi
door, morup
roof, teem, la, to
plough, no word
hoe, tho
axe, turri
rope, cho
dog, nágí
bitch, nágí mama

fowl, nágá
hog, thuá
flesh, shá
cat, tawr
tiger, chun
elephant, lungboochi
pheasant, poruá
rain, num
clouds, kásoo
sky, moo
God, chungryo
Nipal, Yung
India, Kegur
Thibet, Poi
paper, (no word)
letter, higi
large, lujung
small, wotibajuja

long, ringjim
short, toomba
high, gnoba
fat, gnujung
lean, chitpá
black, mlung
white, tur
red, wálá
yellow, oar
green, pingh
come here, kir kán
go, níu
year, tiding
moon, la ní
sun, dini
stars, kurjeu
lightning, tibling
thunder, moodoorba.

Numerals.

one, keek
two, nh
three, som
four, pli
five, guá
six, too
seven, nees
eight, preh
nine, koo
ten, kun

eleven, chookri
twelve, chooni
thirteen, chooksom
fourteen, choopli
fifteen, chooqua
sixteen, choo too
seventeen, choo nus
eighteen, choo puh
nineteen, choor koo
twenty, neesio.
None beyond this.

Months.

January, Tublá
February, Hindi name used
March, Doogoo
April, Mamdong
May, Hindi name used

June, Pelba
July, Hindi name used
August, Koni neo
September, Tubla guja

October, Hindi name used
November, Kebalá
December, Hindi name used.

Names of days wanting in this language.

Classification of Mountaineers and Turai men in Eastern Nipal and Sikim.

Denominations.	*Remarks.*
Brahmins,	Known to all the world.
Khas, Mogurs, Gurungs,	Hindoos; speak dialects of Hindi.
Bhotiahs, Lepchas, Moormis,	Buddhists, with languages of Thibetan origin. Mountaineers.
Limboos, Kerantis, Haioos,	Forms of religion unnamed Languages supposed not to be referable to the written ones of India or Thibet. Mountaineers.
Meches, Dimals, Garrow,	Not Hindoos.
Tharoos, Dhanwars,	Buddhists, or Muhummudans. Languages as the last. Turai men
Batur, Kebrut, Amath, Maraha, Dhanook, &c	Turai men: speak Hindi! Would be Hindoos, but without the pale.

To the Secretary of the Asiatic Society of Bengal.

Sir,—Some gentlemen who have received the 98th number of the Journal of the Asiatic Society of Bengal, have mentioned their regret that a rough map of my route to Hinglaj did not accompany the paper, as it was through a part of the country but little known. I do not hesitate therefore to send you one, that, should you consider it of interest enough, a copy may be appended to the next number.

Yours faithfully,
N. W. HART, Captain,
2nd Gren. Reg. Bombay, N. I.

Camp near Sukkur, on the Indus,
5th September, 1840.

Note.—Immediately on the receipt of Captain Hart's obliging communication, I put his sketch into the hands of the lithographer, and have now the pleasure of publishing a map, which I only regret should not have accompanied the narrative of his journey to Hinglaj.

Inscription found near Bhabra, three marches from Jeypore on the road to Delhi. By CAPT. BURT.

MY DEAR SIR,

I have the pleasure to send you for the Journal, copy facsimile of an inscription in the No. 1, or oldest Lat,h character, which I have lately been fortunate enough to discover upon a hill lying adjacent to a place called Byrath, which is situated at a distance of six kos from Bhabra, to the left, or east, of my route from Delhi to Jeypore, Bhabra being three marches from this place.

I found it on a hard, grey granite block, irregularly shaped, and measuring about two feet in two of its dimensions, and a foot and a half in the third; the weight of it is therefore inconsiderable, so that if the Society wish to possess so beautiful a specimen as it exhibits of the durability of an engraving executed upon that material, you have only to make their wishes known to Major Thoresby, who has kindly stated that he will, in that case, endeavour to obtain the consent of the people of the neighbourhood to its removal, when it could be transported to the Jumna on a cart, (a few men sufficing for its trip down the hill) and from thence be conveyed by an ordnance return boat to Calcutta at a very trifling cost.

Jeypur, 18*th August*, 1840. I am, my dear Sir, yours truly,

TO H. TORRENS, ESQ. J. S. BURT.

NOTE.—This inscription, which is in the oldest of the Lat,h characters, has been sent to me for publication by Capt. Burt, in copy facsimile. The discovery of such an exceedingly interesting historical relic, has added another to the list of most valuable contributions for which the thanks of our Society are due to that intelligent and indefatigable Officer. It is, as will be seen, another of *Asoka's* edicts.

Capt. Kittoe having most kindly offered to superintend the publication of the inscription, I will not rob him of the fruit of his research, by anticipating, in any observations of my own, the results which a careful examination of the writing led him, I think most justly, to deduce from it, both as regards the reading of the characters and interpretation of the words. A reading kindly supplied by Capt. Burt was of much value in determining the exact meaning of several of the characters, but as the one now submitted may be considered, with the united aid of Pundits Kamalakanta, and Sarodha Prushad, an emendation, it alone has been published.

The whole credit of the interpretation, and of the editing of this interesting inscription rests with Capt. Kittoe; and I will only state, I have addressed Capt. Burt, in hopes of obtaining from him traces of further Boodhist relics, as it would be likely that such should exist in the immediate neighbourhood of the site in which an inscription so remarkable was discovered.

Note.—By Captain M. Kittoe.

The above mentioned inscription is evidently one of Asoka's edicts, differing somewhat in style and language from those of the pillars and rocks, the character is however the same as No. 1.

The subject is the Budhist commandment, forbidding the sacrifice of four footed animals, and appears to have been addressed to offenders either of the Budhist faith, or perhaps to those who had not yet become converts, but still followed the laws of the Munis, i. e., the Vedas, which books are here condemned as " mean and false in their doctrine, and not to be obeyed;" in this point the inscription is curiously interesting; it is the only one yet discovered in which the Vedas are condemned by name.

With the aid of the learned Pundit Kamala Kanta, I have been enabled to offer what I trust will be found a tolerably correct version. I first transcribed the whole in Deva Nagri, supplying by guess the letters represented as doubtful or obliterated, when after reading it several times to the Pundit, he had no difficulty in rendering the whole in pure Sanscrit, from which language that of the inscription differs but very slightly.

From the style of the first sentence, I should be inclined to think that the chapter, (though in itself complete) may have been connected with others; for upon comparing it with the Lat,h and rock tablets, it will be found that all the leading chapters in those commence with the titles of Asoka in full; thus, " Devanum Piya Piya-Dasa Raja Evam aha," " the beloved of the gods, the much beloved Raja—thus spake," and it is only in the intermediate ones that " Piyadasi Raja" alone occurs; it would be therefore worthy of inquiry, whether any other fragments are to be found, also whether from appearances the spot indicates the former existence of any Stuppa or Deogope, or otherwise, that it may be presumed that the inscribed block may have been brought from some such place in the vicinity, probably some hill, where caves and other Budhist relics still exist.

The Pundit pointed out several orthographical errors, which have been corrected; in the lithograph accompanying, I have distinguished such (as well as doubtful letters supplied) by their being dotted in outline only.—M. K.

Sanscrit Version by Kumala Kanta.

प्रियदर्शी राजा मगधे संघं अभिवादयमानं आहुः॥ अपबाधितं पशु व्याघातितं विदितमेव भातिः॥ अवतकेह्वा माबुद्धस्य स्वधर्म्म्यं संघे इति गौरवं चोपसद्येव एके च घ्नन्ति भगवता बुद्धेन भाषिते सर्वं शेषे भासिते वा इच्छुका भान्तिः॥ ममया दिशा एवं स्वधर्म्मे चिरं सन्तीति केह्योसन्तीति आलभे मह्विलोकान् तावतः इमानि भान्ति इमानि पालयन्ति विनयशमके अर्थ्यां निवसन्ति अनागतभया मुनिगाथा मौनेयसुते उपपत्तिः स पशौ एव लघौ वेदे मृषावाचः अधितिष्ठ भगवता बुद्धेन भासिते। एतानि भान्ति धर्म्मं परि यानि यानि इच्छामि कतिबहुका भिक्षुका भिक्षुक्यश्च अभीक्ष्णं श्रुत्वा वा उपधारयत यूयं एवमेव उपासकाश्च उपासिकाश्च एतानि भान्ति इमं लेखापयामि अभिमतं मेच॥ ॥

The Original Páli in Roman Characters.

Piyadasa lája Magadhé sunghum abhi vadè manum áha: apa badhitunch pusúva haltunch viditévé bhanté, àvutkéha ma Bùdhsí Dhumsì sungh siti gulvénchuna pusdèch aikachi bhanté; Bhugvaté Búdhén bhasité suvésésú bhasitéva aichúkhabhanté pumiyaya disiya hévum, sudhummé chílustíti, kéhostíti, alhami hkam tavuté ímani bhanté; ímpali yáyami vinyas makusé aliya vasani anàguté bhayani, mùnigatha monagasooté ùpati supusina aiva, lugùlo vadé músava chum, adhiogichya bhugvata búdhén bhasité, aitani bhanté; Dhumm pali yayani, íchhami: kitibahúka bhikhpayécha bhikhanniyécha abhíkhnum súnyúcha úp dhaléya yoova hévum, he[illegible]paskacha ùpasiokacha aitani bhanté: ímum likhapéyami; abhi m[illegible]mé va ùntiti.

Translation from the Sanscrit Version.

Piadasa (the beloved) Raja, unto the multitude assembled in Magadha[1] saluting him, speaks (thus)[2]—

That the sacrifice of animals[3] is forbidden, is well known unto ye; spare them: for those who are of the Budhist faith such (sacrifice) is not meet, thus (spake he). The offering of úpussad[4] is best of all. Some there are who kill—that which the Supreme Budha spake at the conclusion (of his commandments) was well spoken; those who act thus, follow in the right path, they will remain healthy in their faith for a length of time to come.

There are some who make blood offerings, (but) of these there are few. this is right and proper, (the Budhist creed) these (of the faith) I protect, (likewise) those who keep company with the righteous and uncovetous.

The Scriptures of the Munis (the Vedas) are observed by their disciples; their future state is to be dreaded.

The texts of the Vedas in which the sacrifice (of animals) is enjoined, are mean and false (obey them not); follow that which the lord Budha hath commanded; do so (practice) for the glorification of the faith (dhurma). This I desire, that all of ye priests and priestesses[5]: religious men and religious women[6], yea every one of ye, ever hearing this, bear it in your hearts! This my pleasure, I have caused it to be written, yea I have devised it.

[1] It is evident that the assembly here mentioned is the great convocation which is recorded to have taken place at Pataliputra (Palibothra) modern Patna, the then capital of Magadha and of the Indian Empire, in the 17th year of the reign of Piadasa Dhurmatsoka, B. C. 309, for the suppression of schisms of the priesthood (see Turnour's Examination of the Pali Budhistical Annals, vol. vi. part 11, Journal Asiatic Society, p. 505).

[2] The word 𑀏𑀯𑀁 evam, "thus," does not occur as in the Lat'h and rock inscriptions, but it is nevertheless understood; it is supplied by the word इति at the end of the sentence following.

[3] The word 𑀧[illegible] (Sanscrit पशु) literally means any animals which chew the cud, and have hair [illegible] their tails, such as goats, sheep, deer, &c.

[4] A mixture of [illegible], milk, teil seed, and rice.

[5] भिक्षका भिक्षुक्यश्च

[6] उपासकाश्च उपासिकाश्च

On the Fossil Remains of Camelidæ of the Sewaliks. By CAPT. CAUTLEY, *Artillery.*

"But the most interesting discovery was that of a Camel, of which the skull and jaw were found. It is to be observed that no decisive proof of any of the Camelidæ, either camel, dromedary, or lama, had ever been hitherto found among fossil bones, although Cuvier had proved certain teeth brought from Siberia to be undoubtedly of this family, if they were really fossil, which he doubted. This discovery in India was therefore extremely interesting, as, supplying a wanting genus. But for this very reason, it became the more necessary to authenticate the position of this supposed camel's remains the more clearly, especially as there were abundance of existing camels in the country, which there could not be in Siberia. The Indian account is somewhat deficient in this respect, leaving us in doubt whether the bones, admitted to bear a very close resemblance to the living species, were found in a stratum, or loose and detached." *Dissertations on subjects of science connected with Natural Theology, by Henry Lord Brougham, F. R. S. &c. vol. ii. pp.* 213, 214, 1839.

It is only within the last few months, that the most interesting volumes from which the above is an extract have reached this remote part of India; long as the extract is, however, its introduction may be permitted, as affording us the opportunity of removing all doubts of the existence of the camel among the Fossil Fauna of the Sewaliks, by a few supplementary remarks, which a reperusal of the original paper published in the Transactions of the Asiatic Society of Bengal, with reference to the paragraph above quoted, renders necessary.

To those who have interested themselves in the discovery of the fossil remains, which has been made in the Sewaliks, it need hardly be necessary to allude to the two very distinct states in which the mineralization has taken place: that in which the fossil is impregnated more or less with iron in the form of a hydrate, and that where the calcareous elements of the bone are nearly or entirely unaltered, and the medullary hollows filled with matrix; the former universally existing in those remains extracted from the sandstone rock, the latter from the subordinate beds or substrata, either consisting of clay, or an admixture of clay, sand, and shingle. The difference in external appearance is remarkable; the sandstone fossil being to a common observer an organic substance converted into stone, whereas that which is found in the clay strata, not only conveys an idea of a lesser antiquity, but looks like a substance merely in a progressive state of petrifaction.

As the beds of clay, &c., are *inferior* in position to the extensive sandstone strata, the palm of antiquity rests with the fossils of the clay. These very imperfect and half-fossilized looking remains, being evidently of older date than those of the sandstone.

With very few exceptions, the only remains that have been discovered, scattered on the faces of the mountains, or in the ravines and water-courses which drain them, are those from the sandstone strata; those from the lower beds appear to be of a quality too little indurated to withstand the effects of weather and exposure. The greater proportion of the latter, amongst which are some of our most interesting genera, viz., Simia, Anoptothæria, Camelidæ, &c. were *exhumed,* removed out of the parent strata in which they were originally embedded. The remains of Ruminants and Rhinoceroses brought to light in this way, were singularly striking; numerous crania of both families, in many cases not having shed their milk teeth, being found closely and compactly imbedded together, the stratum of rock being a perfect Golgotha, not of the skeletons of old and worn out animals, but of those who were cut off when young, or in the prime of their existence.

In the osteology of the camel there are certain distinctive marks, which at once separate it from the true Ruminantia, laying aside the peculiarities of the cervical vertebræ, in the absence of perforations for the vertebral arteries in their transverse processes, which, with the atlas excepted, is universal in the family, and separates it not only from the Ruminants, but from all other existing Mammalia. There are two very simple points of difference, which can never be mistaken by the most careless observer, the 1st, being the want of anchylosis in the lower extremities of the metatarsal and metacarpal bones,—that of the camel exhibits itself in a cleft or separation of the two bones, to a distance of two or three inches from the articulating surface, whilst the same bones of the Ruminants are perfectly undivided: and, secondly, in the marked distinction existing in the carpal bones of the camel, in the separation of the scaphoid and cuboid, these two bones being joined together in the true Ruminantia.

Of these metatarsal and metacarpal bones, we have forwarded specimens both to the British Museum and to the Geological Society of London, extracted from the lower beds of the Sewalik strata, as well as from the sandstone rock; numerous other specimens of the same family have also been sent to England the more perfect remains of crania being still in our possession, although ultimately intended for the British Museum.

The most valuable remains of Camelidæ, which have as yet been discovered in those hills, and which were figured in the Transactions of the Bengal Asiatic Society, were *dug out in my presence.* The stratum in which they were found consisted of a sandy clay, inclined at an angle to the horizon of about 20 degrees, the position about half a mile north-east of the village of Moginund, which lies at the foot of the range, and the elevation about 4 or 500 feet above that village. These fossils were removed by a working party over whom I was standing, and taken to my camp immediately afterwards; there can be no demurrer on their being fossil remains, for even had they not been exhumed before me, their state of fossilization is a proof of their not having belonged to the existing family; and the position in which I found them was such, that laying aside their being a part of an inclined stratum of rock, no camel of the present day, at least, could have reached such an awkward locality, the excavation having taken place at the head of a deep ravine, terminating in a slip, in a wild precipitous region, far away from the habitation of man, and far removed from even the grazing ground of village cattle.

In the paper above referred to, certain specific differences are noted between the fossil and existing camel, which *a fortiori* establish the discovery of the animal in the former state; as these appear to have been overlooked by Lord Brougham, I will, in referring your readers to the memoir in question, note, that the most remarkable points of dissimilitude were in that portion of the cranium connected with the lower jaw, the breadth between the articulating or glenoid surfaces for the condyles of the latter, being much greater than that in the animal now existing—a peculiarity not confined to one solitary specimen, but common to others, amongst which was a very perfect cranium of a second species, for which we proposed the name of *C. antiquus*, procured from the sandstone strata. With the marked difference above alluded to, it was natural to expect some modification in form to the condyles and rami of the lower jaw; in this we were not disappointed; the obliquity of the ascending branches similar to that of the ox, their form, and the excess of transverse diameter of the condyle, were points of great difference between the fossil and living animal; and in total correspondence with the peculiarities of the cranium; it will be observed, that the difference of structure in the skull is by no means of trifling importance, and as far as the subject of this paper is concerned, is evidence that the bones found by us could never have been the remains of the animals now existing in India.*

That the camel lived at the same time with the Sivatherium, Anoptothœrium Simia, Hippopotamus, Rhinoceros, and with the very prototype of the Crocodiles and Gurials now abounding in the great rivers and estuaries of Modern India, there can be no doubt of, as far as the researches on the Sewalik hills have exhibited proofs.

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* At the lower extremity of the metatarsals and metacarpals the cleft appears to be somewhat less in the fossil than in the existing camel, in the latter the separation of the points of articulation is somewhat greater, a remark drawn from an inspection of a great number of fossil remains of this part of the animal.

As a fossil discovery, the camel is of great interest; its position with regard to the Pachydermata and Ruminants, is a link of a now broken chain. The Sivatherium was one, and Mr. Owen's Macrauchenia was another, to explain the mystery, and add two links to a broken series. That future discovery will tend still further to prove the wisdom of design as an inference, is borne out, by every succeeding step in Palæontological Research.

Whether the camel has existed in an originally wild state in any period within the historical era, is a question that has been argued at considerable length. The animal in a state of domestication is spoken of during the early period of the Scriptural writings, and by subsequent authors at all periods of history; it is mentioned by Strabo and Diodorus Siculus, as having been found in a wild state in Arabia about the commencement of the Christian era.

Pallas who argues on the evidence of the Tartars, that the wild camel is found in Central Asia, is met by Cuvier in the well known fact, of the Culmuks being in the habit of giving liberty to all sorts of animals on religious principles. the natives of Hindostan, who act in the same way, and are guided by similar motives, have in their affection for the cow and ox, given rise to a race of wild cattle perfectly distinct from those of the forest. In the districts of Akbarpoor and Dostpoor, in the province of Oude, large herds of black oxen are, or were, to be found in the wild and uncultivated tracts; a fact to which I can bear testimony from my own personal observation, having in 1821 come in contact with a very large herd of these beasts, of which we were only fortunate enough to kill one, their excessive shyness and wildness preventing us from a near approach at any second opportunity. The wild horses of Southern America, are another proof of the tendency of animals to congregate in herds, and assume the character of originally wild animals, although properly the offspring of domesticated cattle set at liberty; the proof, however, after all, is merely in the possibility of domesticated animals being able to return again to a state of nature, and assume the functions of their primitive designation.

The object of this paper is merely to establish the fact of the camel having been found in a fossil state in the Sewalik hills, the identification being more complete perhaps than that of any other of the numerous genera and species which these hills have made us acquainted with. Judging from the number of the remains of this family in our collections, the camel could not have existed in great abundance, and their proportion to the true Ruminants, must have been comparatively small.

Northern Doab,
Sept. 8th, 1840.

Note—Professor Wilson's work, compiled from the papers of Messrs. Morecroft and Trebeck is not procurable in Calcutta, or I should cite, on better authority than mere recollection, Mr. Trebeck's mention of the wild camel as now existing. I regret exceedingly I did not take a note of the passage which occurs in Mr. Trebeck's journal of a tour in Ladakh, and which mentions the confines of the great Tartaric plain as the alleged tract in which the camel is still found in a state of nature. The question is one on which even Gibbon's immense reading (Miscell. Works. vol. i.) throws no light beyond the mention of the authority of Diodorus Siculus, as noted by Capt. Cautley (Lib. iii. Capt. 41.) The only copy of Professor Wilson's work that I have seen or heard of in India, was in the possession of Sir Alex. Burnes, who while at Simla lent it to me.

Proceedings of the Asiatic Society.

(Wednesday Evening, 2nd September, 1840.)

Dr. JOHN GRANT, Senior Member, in the chair.

Major RAWLINSON, Political Agent at Candahar, proposed at the last Meeting, was elected a Member of the Society.

The Secretary shewed to the Meeting an Astrolobe which had been prepared at Benares for Mons. Théroulde.

The following gentlemen were then proposed as Members,

M. P. EDGEWORTH, Esq.	Capt. W. LOVEDAY, *ditto.*
Capt. T. HUTTON, *37th Regt. N. I.*	Dr. J. D. D. HÆBERLIN.

Captain KITTOE presented to the Society the egg of an Alligator, and the egg of the Caprimulgus (rarely found), with some specimens of precious serpentine found near Sumbhulpore.

Several papers were submitted to the Society, which either have appeared, or are in course of preparation for the Journal; two Reports by the late Dr. HELFER, on the Mergui Archipelago, were among these.

Specimens of the Ground-Fish of the eastern part of Bengal were presented by — White, Esq. of Kishnaghur, they were dug up from a depth of twelve feet below the surface of the earth in Nuddeea. For notice of this fish, vide Asiatic Society's Journal, vol. viii. p. 551.

A model of a Monster communicated by Colonel CAULFIELD, Resident at Lucknow, was made over to the Medical College.

A letter was read from Professor WILSON, stating that arrangements have been made for preparation of the bust of our late Secretary Mr. James PRINSEP; thanks of the Society were voted to Professor WILSON, for having thus anticipated the wishes of the Society.

A letter from Professor Lassen, of Bonn, was read, acknowledging the receipt of several numbers of the Journal, and offering to dispose of any Sanscrit works the Society might think proper to send to Bonn for sale;—transferred to the Committee of Papers.

Specimens of Fossil Alcyonites from Girhur, a village about 40 miles from Nagpore, were submitted by Dr. Spilsbury of Jubbulpore, with extract from a Madras paper noting the experiment performed by Parkinson on similar fossils, viz. immersion in diluted muriatic acid, which having removed about a quarter of an inch of the substance of the fossil, enabled the observer to perceive with a lens of moderate power, several cruciform spines, formed, as it were, by two fusiform bodies crossing each other at right angles; he supposes from their having withstood the action of the muriatic acid, that these bodies, which were originally the spines of the animal, are now formed of hydrophanous chalcedony, and imbedded in a matrix of carbonate of lime, which has pervaded or supplied the place of the soft spongious parts. " I placed one of these alcyonites," says Dr. Spilsbury, " in diluted muriatic acid, which produced exactly the effect described in the paper above quoted, and with the magnifying glass, the silicious radiæ from a centre became very apparent."

A communication was read from A. Grant, Esq. Magistrate of Delhi, announcing his having dispatched to the Society a case of forged seals discovered among the ruins near the town, by a party of prisoners while at work there. They purported to be the seals of most of the persons of note who held authority during the decline of the Mogul Empire, and must have been used in the fabrication of false sunnuds, deeds, and warrants. This curious collection has since been received and lodged in the Museum.

A lithograph, prepared by the celebrated Ritter, shewing the altitude of the snow line throughout Asia, was presented to the Society by Dr. Jamieson, of Umballah, with a promise of communications on the result of recent observations by him upon the formation of the Himalyas.

The Officiating Secretary informed the Society that the letter press of Ritter's Sections was in progress of translation, and that the whole should appear in the Journal.

A communication from the Rev. Professor Street, of Bishop's College, with extracts from a manuscript in the Library of the College by Fra Giuseppe Da Rovato, was read to the Society. The manuscript, dating from 1755, contained with various miscellaneous notices, on Hindoo Mythology and Literature, a notice of some of the antiquities which had struck the Rev. gentleman; among others, the following notice of the well known columns in Tirhoot, by which it would appear that both the columns had then, when Fra Giuseppe examined them, the figure of a lion on their capital.

"In regnis ergo Bettiæ duas ego vidi columnas, in duas provincias differentes, quœ "quidem æquales sunt, ex integro et solo lapide, habentes altitudinis viginti septem "cubitos supra terram, et septem in circumferentia, cum supraposito proportionato "Leone. In utraque columna ex eodem charactere quasi eadem videntur esse verba. "Quas litteras ego retraxi, et misi ad diversa loca, sed nemo potuit neque intelligere "neque legere; non sunt litteræ Indianæ, neque ultramontanæ, sunt ex aliquo Græco "quia multœ litteræ sunt de Græco Alphabeto, aliquæ vero non. In fine vero descrip-"tionis legitur in Arabico Idiomate "* * * * primus minister magni Alexandri "erexit:" nomen vero non benè legitur."

The writer of the manuscript was a member of the Roman Catholic Mission in Nipal and Thibet from 1769 to 1787, about which time the monastery was pillaged and the Mission ejected by the Goorkahs, then extending their conquests in every direction. The greater part of the Library, attached to the Mission was, the Officiating Secretary observes, brought off to Katmandhoo, and preserved there with great care. Mr. HODGSON, he believed, and Mr. ROSS BELL, while Assistant Resident there, had succeeded in obtaining many of the books so preserved.

Captain BURT's Letter, with facsimile of a new Asoka edict, was submitted to the Society. This interesting relic is published in the present number (102) of the Journal.

A Skeleton of a Cobra Capella, beautifully prepared by M. BOUCHEZ, was on the table for the inspection of the Meeting.

For all the above contributions and presentations, the thanks of the Society were accorded, and the meeting broke up considerably after 10 o'clock, P. M.

JOURNAL

OF THE

ASIATIC SOCIETY.

Points in the History of the Greek, and Indo-Scythian Kings in Bactria, Cabul, and India, as illustrated by decyphering the ancient legends on their coins. By CHRISTIAN LASSEN, *Bonn,* 1838.[1]

Character of the Alphabet.

The rule for reading the Alphabet is the Semitic, and this fact is the more remarkable, as the Indian characters of the immediate neighbourhood, as well as those occurring upon Greek coins, coeval with the most ancient coins on which the Cabulian characters occur, have never assumed this direction in all the varieties which the Indian alphabet has gone through within India and out of its confines.

The arrow-headed inscriptions too have the same direction with the Indian, and though at least one variety of them does not express the a, following consonants, yet it has not, as the characters of the coins have, signs of the shortened vowels i and u.

On the other hand, there is evidently in the legends a certain approximation to the Indian system of vowel-writing, not especially by the fact, that i and perhaps also u, even when short, are not denoted by marks on the consonants, nor by the other similarity, that they are not represented, even when long (with u however this is mere conjecture) by the corresponding quiescent semivowels j and v; for the first may occur in

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[1] Continued from p. 488. vol. ix.

Semitic alphabets, the latter may be omitted in them, especially if they be applied to a foreign language; but this approximation of the vowel system is made remarkable by the peculiarity, that a is not treated in the same manner with i, but is considered inherent as in Indian languages. Whenever any Semitic language expresses the short vowels by smaller signs, it does so with a as well as with i and u: whenever it denotes the long vowels by quiescent consonants, similar to vowels, it applies for this purpose א as well as י and ו. But all Indian alphabets represent, as our coins do, A, I, U, by their own signs only as initials to syllables, but never A, when following a consonant, and the other vowels only by abbreviations.

The diphthongs, at least ô, do not follow the Indian system, according to which ते तै *te, tai,* तो, *to,* as well as तु *tu,* are written by abbreviated signs, they do not follow a Semitic system; but the diphthongs are placed in the line with the other letters, and ô has in the writing no reference to u; ê has it not to ee; while instances of the uncontracted diphthongs *âi* and *âu* are wanting. The instance of Eukratides can decide nothing as to the system of orthography peculiar to the language.

As the diphthongs are written in this language, so were all the vowels in Zend; but that language distinguishes between long and short vowels, though the former are but amplifications of the latter.

Now supposing that the characters on the coins were a Semitic alphabet applied to an Indo-Iranian dialect, the shapes of the consonants, and the initial vowels, might be considered as of Semitic origin, the principle for the medial vowels would have been borrowed from the Indian system of orthography, while an independent principle was invented for the diphthongs; and if the orthography of the Zendic language were likewise of Semitic origin, the principle adopted on the legends for only ô, (and ệ) would have been extended in this language to all vowels.

This conjecture embraces the postulate, that at the period when the characters on the coins were introduced, the Indian alphabet had already completed the system upon which its peculiar mode of representing the vowels is founded.

This supposition may, I think, be proved correct.

Let us first of all dismiss any consideration of the Semitic origin of both alphabets, and look to the reference they have one to another. If in the one, the system of vowels be of Indian origin, and in the other original (and peculiar to the language,) as above supposed, there can be no point of comparison. But with regard to the diphthong ô, it is worth remarking, that 𐨀𐨆, ô, has the form 𐨀𐨆 on later coins, but slightly differing from 𐬋, and hence it would appear as if the Zendic alphabet had borrowed this ô from the alphabet on the coins. This, however, does not hold good with ê.

By comparing the consonants, we find resemblances perhaps only between r and w, (not v, of the Zend alphabet), and n, in which, however, the similarity is very obvious, though we in fact are comparing two extreme points only, viz. the characters on the coins in their most ancient form, and the Zendic character of wholly modern manuscripts. With other letters we only require a common medium of comparison to ascertain their relation, as for instance with m, dh, and others.

I do not propose to carry this comparison further, which to afford satisfactory evidence, would require us to obtain in the first instance the characters of the coins in their latest shapes; and would also necessitate us to point out in the Zendic alphabet, what characters were subjected to a change of shape, to which the nasals are especially liable. Lastly, it would not be sufficient to confine our comparison to these two alphabets; all other alphabets must be similarly considered, which in a geographical and historical point of view are included in the same circle as these, viz. the Pehlvi characters of the books of the Parsees, so intimately connected with the Zendic character, as well as the various characters of the Sassanian monuments. All of them are closely connected, first, in a geographical point of view, as they are the native tongues in the countries west of the Indus, and east of the Euphrates, viz., in Iran, probably so called; and secondly, in an historical point of view, as they came into use in the period intervening between Alexander the Great and the invasion of the Mahomedans.

Without at all deciding on the time when the Zendic works were first composed, it is certainly evident, that the characters of the coins, appearing before the dominion of the Sassanians, were the most ancient of the alphabets of Central Iran.

The characters on the coins are therefore of special importance with regard to their relations to Semitic alphabets, before proposed as a mere conjecture, and if we do consider that it was during the dominion of the Seleucides, and their successors, in use in Bactria and Parthia, we must look for the model upon which they are formed, in the capitals of the Seleucidian power, if their origin from the west be admitted. The comparison must consequently specially include all that may be most likely to afford us an idea of the Syrian alphabet, as it was in use under the Seleucides, such as the inscriptions of Palmyra, though the most ancient of them is nearly a century and a half later than the characters on the coins.

These conjectures pretend to no more authority than is implied in them as mere suggestions, and they must not hinder us from determining more exactly the alphabet on the coins in a geographical and chronological point of view.

Its geographical limits are connected with the extent of the Greco-Bactrian and Indo-Scythian power southward from the Indian Caucasus. None of the Greek kings who reigned in Bactria only has made use of this alphabet on his coins, and even of those who have adopted them, *Eukratides* perhaps alone possessed territories in Bactria, as well as southward from the Caucasus.

To this we must add the following : the Kanerkis, who, while passing towards India, must have lingered longer in Bactria than other Scythians, because they appropriated to themselves in preference Bactro-Persian gods, have, like the Greek purely Bactrian kings, never adopted this alphabet.

This being so, we cannot help supposing, that the characters of the coins were not indigenous to Bactria, that is to say, that they existed to the south only, and not to the north of the Caucasus.*

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* A short inscription, a word from Bamian, which Mr. Masson had read according to their alphabet, is quite uncertain, As. T. v. 188.

They are discovered to the east in topes, near Jelalabad, and between the Indus and Hydaspes in Manikyâla, but further eastward than this, they have not been met with. We also do not know yet whether they extend to Kandahar, in a more westerly direction. To the north of the Cabul river those characters are met with in Kapurdigarhi, in the ancient Peukelaotis. As. Trans. v. Pl. XXVIII.

As the matter therefore rests at present, we may assert, that these characters were geographically limited to the country about the Cabul river, and we will term the characters on the coins THE CABULIAN ALPHABET.

Menandros, or Eukratides, is the first who made use of the alphabet. That we may not pretend to fix the time more exactly than the facts admit, we shall assign their first occurrence to the years 180—170 (B. C.) It existed in use, as has been already noticed, till within the Sassanian era, and is therefore coeval with the character found further west on the monuments and coins of the Sassanides.

The latest occurrence of these characters is perhaps found in the report of Hiuan Thsang, when he says, that in *Thsaokiutho* other characters than the Indian were in use; now there, in the country to which our alphabet was indigenous, about the Panjhir, a tributary of the Cabul, it appears hardly possible to allude to any other characters than to these.

But it was, on the other hand, also cotemporary with the Indian alphabet, which appears as early upon the coins of Agathokles and Pantaleon, and proves entirely different, both by its opposite mode of writing and by the shape of its characters. This Indian alphabet occurs immediately before this date on the columns of Azôka (260—219. B. C.)* and continues under the Indian kings of the Maurja dynasty.† As now the empire of Azôka extended to the Indian Caucasus (I shall hereafter recur to this) and as it would appear preposterous that he should have introduced an alphabet foreign to him upon the *stupas* which he is said to have built there,‡ as on the contrary the

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* Zeitschrift fuer die Kunde des Morgenlander, As. Trans. VI. 791.

† As. Trans. VI. 678.

‡ Foe K. p. 395.

Cabulian characters on the coins disappear in western India, together with the dominion of the foreigners, the following conclusions seem still to result. First, the Cabulian characters on the coins occur in the Punjab, not because a native alphabet was unknown there, but in consequence of the foreign dominion, which transplanted thither from Cabul, carried on its coins along with it, to the east, its peculiar characters. Secondly, it is doubtful, whether the dominion of the foreigners descending from the Caucasus, found in western Cabulistan, this alphabet alone in use, or employed in common with an Indian one. To us it appears probable, from the foregoing remarks, that these foreigners did not import the alphabet with them from Bactria. At the very place where the intercourse of trade brought into contact the east and the west, India and Iran, it was most easily possible that an alphabet, introduced from the west, such as we must admit the alphabet on the coins on our previous investigation to be, may have been in use in common with Indian letters, unless we be disposed to attribute to the Paropamisades the invention of an alphabet of their own. Whether there were indeed an Indian alphabet there, we shall not question; the coins of Agathokles and Pantaleon, however, prove, that an Indian alphabet, if not in western Cabulistan, prevailed at least more to the eastward; had this not been the case, why should they have used Indian characters? But these characters disappear with those kings, and retreat proportionately with the extension of the dominion of Menandros to the eastward.

I do not here extend these remarks, as the era and the abode of Agathokles and Pantaleon are still uncertain; I shall only add, that I can place them neither with Mr. Raoul-Rochette in Bactria at the head of all those princes, nor with Mr. K. O Mueller remove them to India Proper.

But the following fact will prove, how correct it is to consider the characters on the coins as foreign to India. Upon the ancient Buddhist coins, discovered* in the ruins of the town Behat on the banks of the Jumna, there occurs the title 𐨨𐨱𐨪𐨗𐨯

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* As. Trans. III. 227.

Mahârâjô, in Cabulian characters, and on the reverse the same words in the old Indian characters of the Agathokles coins, and the Azôka columns.* By this fact it is quite evident, that the Cabulian alphabet on the coins was not in use in India Proper, and this at the period when the most ancient form of the Devanagari, which we as yet know, was still prevailing. Those Buddhist kings whom we otherwise do not know, must have employed the Cabulian characters only for the use of their subjects on the banks of the Indus.

It does not follow from the foregoing remarks, that the characters are not more ancient than the coins upon which they occur. If no coins were previously struck there, the characters could not indeed be used for numismatic purposes, but they would be in the transactions of other business. When Pânini (IV. I. 49) informs us, that by the affix *ani* to the word *Javana,* the writing peculiar to this nation *Javanani* **यवनानां लिपिः यवनानी** is represented, he perhaps points at the Cabulian alphabet. According to Indian tradition, Pânini is placed immediately before Chandragupta, (therefore during the reign of Alexander the Great); it is more certain, however, that his native country was the ancient Gandhara, where he would be certainly enabled to become familiar with the characters of the *Javanas* of that country.

I have taken it for granted in the course of the preceding remarks, that the Indians were already possessed of an alphabet of their own, at the period when the Greek kings first extended their dominion to the south of the Caucasus; some of my inferences are mainly founded upon this view.

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* I owe this important fact to communications Mr. Prinsep made me by letter. The proper names are not yet read, as far as I know, upon the coins of this kind, with duplicate legends; those that are read, are only in old Indian characters and Indian. As. Trans. VI. 464. As those others are ancient, I presume, that on these very coins, monuments of the dynasty of the Buddhist Khanishka will be brought to light; for he must have reigned a short time before or after the commencement of our era; he ruled Gandhara, Kazmira, and the country Keenaputi 500 lis to the eastward from Vipâzâ, (Foe K. p. 381). This lies in the nearest neighbourhood of Behat, and the use of the two-fold characters for the same language is exactly suited to these countries.

But now I perceive, that an erudite person whose views must be of great weight with all those that have occupied themselves with his writings, draws from the newest inquiries into Indian coins, the conclusion, that the Indian alphabet is derived from the Grecian.

Mr. Prinsep in decyphering these Indian characters, written in a peculiar manner on the coins of Saurashtra, asserted, that the more ancient the Nagari, the more similar become the characters to the Grecian ones. Upon this he had grounded the conclusion,* that the most ancient Greek characters are but the Indian turned upside down.

Mr. Mueller, who did not of course require proof of the invalidity of this view, takes the converse of the assertion.† "If," says he, "the relation of the ancient Nagari to the Greek alphabet is closer than can be explained by the common derivation of both from Phœnician language, we are forced into the conclusion, that the Greeks introduced this alphabet to the Indians, and that in consequence, the heaven-born alphabet of the Brahmins is not older than Alexander."

Now this is no casual remark, such as sometimes occurs in a journal, and which we may put aside without notice, but it is, if not a view deliberately considered, still an opinion positively pronounced and hopefully cherished. He says (p. 249,) "We must, however, confess that our hopes as to the historical connexion between Indian and Grecian civilization, go far beyond this fact," (that the Indians have borrowed their shapes of coins from the Indo-Scythians) "and extend over the whole history of art and letters."

It is therefore a favourite opinion of this celebrated scholar, the correctness or incorrectness of which must be of vital importance in Indian antiquities. For if the Indians had no alphabet before Alexander, all the writings that we have hitherto considered the subject matter of as genuine sources for the knowledge of India from the most ancient days, were penned after Alexander's time, or more correctly speaking, after the establishment of the dominion of the Bactrian kings in Cabul and on the Indus, as no sound critic can assign such an influence as consequent on Alexander's momentary sojourn in India.

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* As. Trans. VI. p. 390.

† Goett. Gel. Anz. at other places, p. 252.

Bayer had discovered from some Indian words, communicated to him, that a striking similarity obtained between the Greek and Indian numerals; hence he concluded, that the Indians had borrowed these words from the Greeks. The affinity was ingeniously discovered, while the inference not too bold, as he at the same time admitted, that the Indians possessed other and more ancient native numerals; none, however, will probably in our days earnestly undertake to refute Bayer's opinion; but in his time he could hardly draw any other conclusion from the reports at his disposal.

Mr. Mueller's conclusion, however, appears to me much bolder, and whatever species of criticism he may meet with from others, I for my part shall refute him in good earnest.

Supposing, there exists in very deed a similarity between the Greek and the Indian characters on the Saurashtra coins, as Mr. Prinsep has maintained; granting also, that they were imitated after Parthian and Indo-Scythian models, it will be asked, what inference can be hence derived? Certainly only this, that the characters on those coins are of Greek origin. Mr. Mueller* places a date to these coins, subsequent to the first century of our era; the age of the Indian alphabet cannot therefore be traced with certainty prior to this period.

Whether this similarity do exist, or not, is here wholly beside the question; I think it fallacious, but I shall here drop the subject.

Mr. Mueller will have it for granted, that the older the Indian characters are, according to his conjecture, the closer must be their similarity with the Greek.

Now he assigns himself the coins of Agathokles and Pantaleon to the year 200—160 B. C. Their coins, having exactly the same alphabet as employed but a short time before on Indian monuments, was undoubtedly the form, then adopted, of Brahminical Debnagari. This character has been now decyphered with full authenticity by Mr. Prinsep, as is the most ancient from the Indian characters hitherto discovered.

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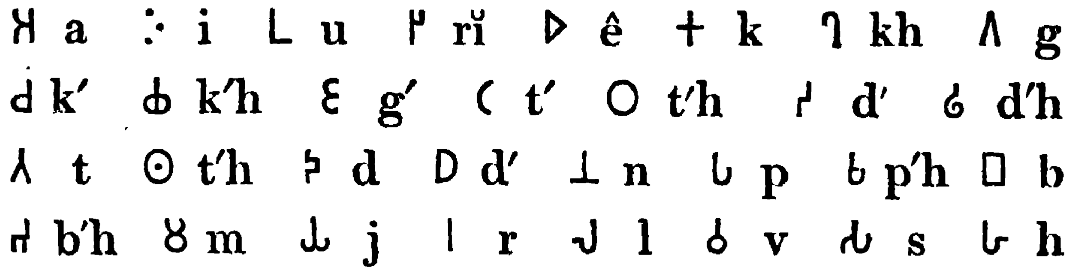
* p. 248.

I shall here copy this alphabet, (and ask), whether the hopes, above alluded to, of tracing the sources of the Indian alphabet to the Greek, are likely to be much favoured by this discovery? I must strongly doubt it.


a i u ri ê k kh g
k' k'h g' t' t'h d' d'h
t t'h d d' n p p'h b
b'h m j r l v s h

It may be added, that this alphabet had already the junctions of consonants, and the representative marks for shortened vowels, such as we find them to this day in the Indian orthography.

To prove the desired derivation of the Indian alphabet from the Greek, it will be necessary to point out, as existing between the era of Alexander the Great, and the grandson of Chandragupta, Azôka, a form of Indian characters, marking the progress of transition from the Greek alphabet to the Indian, above exhibited. Till this has been effected, we may be allowed to keep in store (as reserve artillery), the remaining arguments in favour of the originality of the Indian alphabet, which are to be discovered in the grammatical system, in the history of the language, in the substance of the inscriptions, and, lastly, in the reports of Megasthenes and Nearchos.

The time has been, when every invention of the human mind must have passed from the East into Greece; but the philologists of classic antiquity would like to establish the converse of this view on every subject. The hope of advancing science is most laudable, but most fallacious, if cherished for a favourite system, since it impedes the judgment in forming clear and impartial conclusions. How otherwise could a man of so clear a mind, as is Mr. Mueller, fail to perceive, that he clung to a predilection, while neglecting the most important facts?

It seems to me, I confess, a pleasant accident, that this latest effort at Indian conquest, made by Greek philology, may be refuted by the mere agency of a petty monument of Grecian art.

§ 13.

The Language.

That the language of the legends in the Cabulian character belongs to the widely extended family of the Arian languages, is so evident from the foregoing disquisition, as to render it unnecessary to dilate on the subject; a few words only on the latest coins of the Kadphises dynasty, constitute the only exception to this fact.

The language on the coins also remains at all periods unaltered; in the word *tâdârô* alone is an alteration affected to *dhâdhârô*, giving evidence of a later variety in pronunciation.

I do not include in this assertion the language of the Kanerki-coins; they refer to another dialect, on the position of which, as to local use, a conjecture can only be formed hereafter. From the discussions, as to the country to which this alphabet was indigenous, the natural inference ensues, that the language, expressed in these letters, may be assigned to the same country; all peculiarities hitherto discovered, as to the system of sounds in the language, tend to the same conclusion.

The language is not Zend, for this does not absorb the consonants; the Zend has *puthra*, not *putta*, and retains even on the Kanerki-coins, *athro*, *mithro*, *ardethro;* the language of the coins, on the contrary, reads, *Minadhô*, *Eikatidô ;* Zend again retains n before t, but not the language on the coins; Zend does not exclusively express its nominative in the termination ô, and it alters an Indian H into Z, while the language of the coins has *mahatô*. Zend has no L, while with our language it is a favourite letter, as for instance, *prati* becomes *pati*, and even *pali*. A Zendic, or more correctly speaking, an Iranian affinity, appears only in the substitution of k (i. e., q or kv) for *sp* identical with *sv*. This fact, and the correspondence with the old Persian in omitting the nasal before dentals, are the only peculiarities which refer to Iran.

Other facts have been noticed, with regard to the language, as common to the Indian dialects of Prâcrit, viz. the absorption of consonants, the alteration of hard into soft roots, and the l for t. The word *Dharma* has a decided relation to India, being all a doctrinal term, which cannot be declared as such with reference to Iran; again, *râjan* for *king,* and *gaja* for *victory; tâdârô* too is also Indian,—though we will not deny its also belonging to Zend. These indications lead us to a country, immediately bordering upon India, and the language of which, though not entirely Indian, and rather forming a transitional dialect in some respects between the Indian and Iranian languages, still did not very materially differ from an Indian dialect; in saying which, I allude to the language in daily use with the common people, and not to Sanscrit, which was then already, in all probability, the language of the learned castes, and of the great. The existence of the dialects of Prâcrit, as in common use with the people, is ascertained by their occurrence on the Buddhist monuments of this time; the Prâcrit, or what eventually is the same, the Pali, could not have been raised by the Buddhists to the dignity of a religious language, unless it had existed aforetime among the people. Now as about the period of the first of the Greco-Indian kings, Prâcrit was used on monuments in India itself, at least by the Buddhists, there is no occasion for wonder, if we meet with a popular dialect in Cabulistan, especially on coins: the Sanscrit would have only been in use there under a Brahminical influence.

The country of the language on the coins may therefore with certainty, I think, be looked for westerly from the Indus, and to the south of the Indian Caucasus; but it is very difficult to define its limit more exactly; for though we have already proved, that the influence of Indian dialects extends to the westward of the Indus, even to the Cabul river beyond Jelalabad, still it does hence not follow, that to the country west of that, the same language existed. It is true, we found also, that the Paropamisades were represented as being Indians, and a later notice extends the term *Indian* even to Arachosia;* but reports of only a little later date, have limited the influence of the

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* Isidor. Charac. with Huds. p. 8.

Indian language to a point beyond Jelalabad. To arrive at a conclusion, would involve the necessity of acquaintance with the more minute peculiarities of those languages in their ancient condition.

Again, the existing relics of the ancient languages in these countries, admit the inference of no deduction. The Deggani language in Lamghan, as well as the spoken language of Kaferistan, may still be recognised as remnants of old Indian dialects, but we do not know them so well, as to be able to make use of them here. The language of the remaining ancient races of western Cabulistan, the Kohistan of the present day, is entirely unknown. We can therefore only say generally, that in one of those dialects the remnants of the ancient Cabulian language must exist, the oldest traces of which occur on the coins, but without being able to decide ourselves in favour of any particular dialect among them, as being the receptacle of those remains. I indeed know, that some have pretended to recognise the Afghans in eastern Cabul, even as early as Alexander's time; not so Mr. Elphinstone,* who rather proves their immigration into Cabul at a much later period; this conjecture has originated with Professor Wilken, who thinks, he recognises the Afghans in the Assakanes.† If these were indeed Afghans, the Afghan language would have been spoken throughout Cabul, and the language of the coins must be the sources of the Pushtoo. Without observing, that neither ancient authorities nor modern Afghan history, admit or require this supposition, the correct assertion of the learned academician himself, that the Afghans belonged to the Medo-Persic tribe, is at variance with it; the Assakanes inhabited a country, where even in the 7th century A. D., an Indian language was spoken. The language of the Afghans, moreover, shows an evident difference from the language on the coins; as, for instance, it substitutes like Zend, z for the Indian h, *zumy,* winter, for *hima,* and this z is altered in the western Afghan dialect into *gh, urighu* (rice) for *urizu,* for *vrihi.*‡

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* Account, &c. II, 10. 33. 44. 50. 56. &c.

† Abhandlg. der Berl. Acad. 1818-19 p. 261.

‡ Ὄρυζα has been introduced through Persian into Grecian language.

Though I cannot therefore discover the Afghans on the Indian frontier at so early a period, yet I willingly allow, that the original seats of the Afghans, may have had a situation sufficiently near Cabul. On this supposition, it would by no means be surprising, if their language were not a purely Iranian dialect, but rather like that on the coins, forming the transitional dialect between the Iranian and the Indian, but approaching (in point of locality), the west, with a prevailing affinity to Iranian peculiarities. I dare, however, not indulge myself by pursuing this interesting investigation.

§ 14.

The Kings. Classes of coins, and places of their discovery.

There is much more difficulty in obtaining for the seat of the different empires, established by the coins, and for the series of their kings, even that degree of probability, which we have, I think, succeeded in arriving at for both the language and alphabet.

It will here be necessary, first to have before us the materials to be arranged; I shall accordingly enumerate the names of the kings according to the coins, adding the facts, which hence result, as regard the æra, the succession, or any remarkable circumstance with respect to each of those kings. I have invariably noted the places, where the coins have been discovered, if it appeared to be instrumental in determining the native country of the kings. The classes I have adopted, are founded on the language and alphabet, and their sub-divisions upon the numismatic inquiries of Mr. Raoul-Rochette, and upon the titles of the kings.

Concerning this catalogue, I must premise, that it has been only made with a view to facilitate succeeding investigations, and that it does not pretend to giving a numismatic description.

I. *Coins with merely Greek characters.*

§ 1. *Greek characters, and purely Greek names and titles.*

Euthydemos. Head with diadem; on the reverse Hercules, either standing with the club raised in his left hand, the lion's skin over the arm, and in the right hand a crown, or else a common Hercules, seated, leaning on his left hand, in the right the club placed on a rock.* The coins presenting Hercules in a standing position, exhibit the youthful head of the king, which indeed differs from the head of Euthydemos, as ordinarily represented, and rather resembles that of Agathokles; hence Mr. Raoul-Rochette's conjecture, that Euthydemos may have succeeded Agathokles, and may at first have retained on his coins the portrait of his predecessor.† The resemblance with that king, however, appears not striking enough, and the connexion between both of them could be only admitted in the reversed succession. Lastly, a coin has been discovered, the reverse of which represents a horse without trapping, and galloping;‡ one legend occurs invariably. ΒΑΣΙΛΕΩΣ ΕΥΘΥΔΗΜΟΥ. Bronze coins with an Apollo, crowned with laurel, and the reverse with the tripod. R. R. II. 60. J. d. S. p. 387.

We may get some single specimens of these coins, which are distinguished for their beauty, from the south of the Caucasus; but they come in course of trade from Balkh; there occur too in Bokhara many coins of Euthedemos, barbarously executed, with an almost illegible legend, which sometime eluded all attempts at reading it.§ These latter are imitations, originating with the Scythians of the north, whom we cannot call Indo-Scythians, as they had not arrived yet in India.

Demetrios, son of Euthydemos, a fact confirmed by the coins.||

Beardless, diademed head; reverse, helmeted Minerva, standing, with a long tunic, and a shorter one over it, the left hand leaning on the shield; in the right a spear. Another reverse with Hercules standing, either similar to the coins of the father,¶ or crowning himself with his right hand; and the head of the king, elegantly adorned with the trunk and tusks of an elephant. This latter emblem, evidently refers to his Indian conquests. Mr. Raoul-Rochette infers from the similarity of the other type with that on the coins of the Eukratides, that these

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* R. R. J. des Sav. p. 328. p. 386. I. p. 7. A. T. IV. pl. XXV. No. 1. V. pl. XLVI. No. 3.

† I. 8.

‡ As. T. V. pl. XLVI. No. 4.

§ R. R. I. 3. II. 12.

|| R. R. J. des Sav. p. 330. I. p. 3. II. 17.

¶ R. R. I. p. 7. &c. II. p. 16.

coins of Demetrios were struck, while he was unexpelled as yet from Bactria by Eukratides, and infers, that Demetrios had therefore also reigned in Bactria, though but for a short time.* That he laid claims to Bactria, is certain enough. These coins are likewise of superior workmanship, and in most elegant taste. Legend ΒΑΣΙΛΕΩΣ ΔΗΜΗΤΡΙΟΥ. The coins are rare, and have been partly transmitted to us through India, partly through Bokhara. Their proper place of discovery is perhaps not yet exhausted (discovered ?) On this hereafter. Mr. Mionnet (VIII. 473) pretends to infer from these coins the existence of two Demetrii; till this new fact in history is more surely proved, we may be allowed to treat this second Demetrios as "a king of shadows."

Heliokles.—Known only by his coins, and first embodied in the series of Bactrian kings by Mionnet, then by Visconti.† Mionnet asserted, that he was the son of (or of an) Eukratides, while Mr. R. R. thinks him his predecessor.‡ A specimen has been brought from the city of Cabul by Mr. Honigberger,§ Type; Jupiter standing, with the thunderbolt, and the legend ΗΛΙΟΚΛΕΟΥΣ ΒΑΣΙΛΕΩΣ ΔΙΚΑΙΟΥ. On account of the epithet (*just,*) Mr. R. R. puts Heliokles in connexion with other kings, who likewise style themselves *just,*|| as the founder of a separate branch; but Lysias, whom he had in mind, in forming his opinion, is a Spalyrios, and of the other Grecian kings, only one has the same epithet, viz. Archelios, a later discovery, he has indeed as well the Jupiter type, but he in addition calls himself ΝΙΚΗΦΟΡΟΣ, and has a native legend. A copper coin of Heliokles, the first specimen of this kind, has been discovered of late in the Punjab, (As. Trans. Vol. VI. 987,) it is not stated, whether with a native legend or not. I may be hereafter allowed to propose a conjecture on historic grounds concerning his era.

Eukratides. Mr. Raoul-Rochette¶ distributes the coins bearing this name, between two Eukratides, father and son, on the precedent of Bayer, who maintained, that some things

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* I. p. 10. As. T. IV. pl. XXV. No. 2.

† R. R. J. des Sav. 1834. p. 329.

‡ R. R. I. p. 34. II. p. 26.

§ R. R. I. 3.

|| I. p. 26.

¶ T. der Sav. p. 387.

were mentioned of Eukratides, not in correspondence with the victorious king of this name; hence he concluded, the name of his son, successor, and murderer, was the same.* But that the son and parricide did bear the same name, is not conclusively established by authorities (of which hereafter); while Mr. Mueller† objects to this view from the very reason, that, according to the arrangement of M. R. R., this very Eukratides, known to us as a parricide, was called "the Great." There occur indeed two specimens, one of which has also native legends. I here describe the purely Greek one alone, postponing my own view for the historic examination.

Diademed head of the king; reverse, a naked Apollo crowned with laurel, standing with one hand leaning on a bow, in the other an arrow. Legend ΒΑΣΙΛΕΩΣ ΕΥΚΡΑΤΙΔΟΥ.‡ This type never has a native legend. On other coins a head of Apollo with a laurel wreath; on the reverse, a horse with the same legend in Greek alone.§

The coins with the Dioscuri on horseback, with the title of "Great King," and which are partly of purely Greek and some with a native legend, are assigned to Eukratides II.

This type of the Dioscuri, however, likewise occurs with the simple Greek legend, ΒΑΣΙΛΕΩΣ ΕΥΚΡΑΤΙΔΟΥ,|| and without the native character, which only appears, when the Greek has the word ΜΕΓΑΛΟΥ. The Dioscuri on horseback have sometimes a helmeted, and sometimes a diademed head of the king; those with the caps of the Dioscuri only a diademed head, with the title either simple, or at length.¶

It is evident, that neither the difference between "king" and "Great King," nor the native legend, affords any criterion for assigning the type of the Dioscuri to the son. There remains the difference in the features of the king, which may be laid to a difference in age. On the native legend we shall remark hereafter.

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* p. 95.

† p. 205

‡ J. des Sav. p. 386, l. No. 5.

§ R. R. II. 60.

|| A. T. IV. pl. xxv. No. 6. 7.

¶ A. T. V. pl. xlvi. No. 10. No. 11.

Masson found 107 coins of Eukratides in Beghram, he does not, however, distinguish them according to the types.*

There occur also coins of Agathokles, with a purely Greek legend; but as nobody would adopt the idea of *two* Agathokles, we shall postpone the investigation of this point.

§ 2. *Purely Grecian characters, the kings not Greek, having, however, no barbarian titles.*

The following coins present a singular phenomenon. Mr. Masson discovered at Beghram,† in the space of three years two hundred and fifty-seven specimens of a coin with the legend ΒΑΣΙΛΣΕΥΣ ΒΑΣΙΛΕΩΝ ΣΩΤΗΡΜΕΓΑΣ, but without a proper name. The Greek legend being sometimes corrupted, we observe either ΒΑΣΙΛΕΥ or ΒΑΣΙΛΕΥΩΝ.‡ Bags full of these may be had in Affghanistan, and in the Punjab. The similar coins with a native legend, never have the bust of the nameless king. Mr. Raoul-Rochette describes them in this manner: "Bust of a king, the head encircled by a diadem and a nimbus; with his left hand holding an iron spear; no legend. Reverse, a man on horseback with the Greek legend, above mentioned. The head of the bust helmeted, occurs too as a variety."§

The large number of these coins proves that this king possessed an ample empire, and did not reign for a short time; he must have governed Cabul, and a part of the Punjab. The corrupt Greek suggests an era, more recent than that of many other Indo-Scythian coins. The title σωτὴρ seems to connect him to the Greek Soter family, which may have concluded with Hermaios. This is the remark of Mr. Mueller, and I am only prevented from adopting it, because the Kadaphes coins are apparently still nearer related to one or the other Hermaios, and all the other Soters have likewise native legends. M. Raoul-Rochette‖ accounts for the want of the name by (the supposed existence of) an agreement, with regard to the currency, to the effect, that in order to put the coins into common circulation in neighbouring states, the name of none of the kings of those states was used on the coins. The nameless king, however, appears to have been too powerful to acquiesce in such a stipulation. According to Mr. Mueller, his name, on account of its dissonance, could not be well expressed in Greek. People, however, who were not offended at the nominative *βασιλευ*, or the genitive *βασιλευων*, would not have hesitated at obtruding a name as barbarian as possible, on the Greek letters, and if the attempt were unsuccessful in Greek, why was not given recourse to native letters ?

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* A. T. V. p. 547.

† A. T. V. p. 547.

‡ R. R. I. p. 26. As. T. iv. 345.

§ R. R. I. No. 17. No. 18. No. 19. As. T. IV. pl. xxiii. No. 26 (Among the Azes' coins.)

‖ II. 38.

I cannot explain, why there is no name; but from the use of Greek characters alone, it becomes probable, that the Soter belonged to a certain Scythian horde, which had for some time their abode in a country, where purely Greek, and not native characters, were adopted for the coins. The nameless king, who perhaps first settled his horde in Cabul and about the Indus, perhaps adhered at first to the established custom by not adopting native characters on his coins. At an after period, however, he perhaps used them; if indeed the coins with native legends, which M. Mionnet assigns him, be really his.*

There exist besides, coins of some other Indo-Scythian kings, with regard to which it is doubtful whether they have native or purely Greek legends. They bear the title "King of Kings," and some of them have a horse, others an elephant, and they reigned therefore partly in Bactria, partly in India. As the names are illegible, we shall here only refer to the engravings and descriptions of these coins; for we must at first leave even this undecided, to which of these kings the native legends belong, and whether we have to adopt a separate series of Indo-Scythian kings, who admitted purely Greek letters and titles, whilst the Kanerki dynasty adhered to Greek characters to express barbarian words. If the assertion, that to the north of the Caucasus the characters on the coins were not used, be well founded, we might presume, that those Indo-Scythian kings held fixed dominion in Bactria alone. Now those coins yield no other historical result, than that the Indo-Scythians were divided into a number of dynasties, and that we are far from knowing the whole series of their names.*

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* VIII. p. 505. pl. x. No. 85.

Lastly, we have yet to mention here the king Mayes.

Type a Caduceus; legend ΒΑΣΙΛΕΩΣ ΜΑΥΟΥ. Reverse, the head of an elephant from which a bell hangs, of beautiful Grecian workmanship and with good Greek characters; according to M. R. R., contemporary with Menandros and Apollodotos, as the same head of an elephant occurs on their coins; his conjecture, that the name may be a variety of Apollodotos, has hardly any support whatever.† Mr. Mueller thinks these large copper coins to be the most ancient monuments of the Indo-Scythian dominion in India.‡ The elephant alludes indeed to a campaign against India. Being taken from the collections of the Generals Ventura and Allard, they refer to the Punjab. M. Mionnet ascribes to Mayes, moreover, a native legend, which consists of two signs.—This legend as given by Mr. Prinsep, is scarcely to be taken as letters; M. R. R. has not noted it at all; the pretended legend stands besides between *βασιλέως* and Μάυου; the name must have been expressed by P∧∪, which does not appear with Mr. Mionnet. How then has this king used a native legend? As respects this king also, I must leave it to numismaticians to make a historical application.

§ 3. *Pure Greek characters; barbarian names and words.*

Kodes. Small silver coins. A head, the hair wreathed with fillets, and descending to the neck; it would appear, that the face is different (on different specimens); one has mustachoes, but all of them have suffered much. Legend, ΚΩΔΟΥ, complete on but one coin.§ Reverse, a figure standing, the right hand leaning on the hip, in the left a spear, indistinct head dress, flames behind the shoulders. Legend according to Mr. Prinsep's conjecture: (Α)ΡΔΗΘΡΟΥ ΜΑΚΑΡ(ΟΣ). The Greek letters terminate in points; upon No. 13 there is perhaps the name of another god. A second variety, has the anterior half of a horse. They come from Cabul and western India; but likewise through Bokhara to Russia.

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* As. Trans. v. pl. xxxv. No. 4, iv. pl. xxi. No. 12. No. 13. No. 14. Then iv. pl. xxi. No. 7 and 8, lastly iv. pl. xxi. No. 11. Compare Mionnet viii. p. 504. No. 135, No. 136, No. 141, No. 142. I shall not undertake to read the native legends, represented x. No. 88.

† II. p. 49. The coins R. R. II. No. 18. As. Trans. iv. pl. xxv. No. 4. New varieties of them are discovered of late in the Punjab. As. Trans. vi. 987.

‡ 228.

§ As. Trans. v. pl. xlvi. No. 16, No. 17. No. 18. iv. pl. xxv. No 11. No. 12. No. 13. R. R. J. d. S. 1834. No. 8. No. 9. p. 389.

The horse refers to Bactria, as do the purely Greek characters and the god of fire, with whom the names of gods on the Kanerki coins are connected.

Kodes is perhaps the very same king, who went southwards over the Caucasus, and founded an empire on the banks of the Indus and of the Cabul, for the Kanerkis.

Kanerki coins. I shall not repeat the remarks above made on the legends, the words PAO NANO PAO and KOPANO, and the names of gods. Kanerki is represented in a standing position, with a long Usbek coat, pointed Tartar cap, the right hand leaning on a spear (and a bow over the back, T. A. V. XXXVI b. 9.) with the left making an offering over an altar. The figures of gods on the reverse are already described. In the note I shall mention the coin,* some from the topes in Manikyala, Jellalabad, and from Cabul and the Punjab, from Benares, and likewise from the Ganges.†

Ooerki. Bust of the king, adorned with a tiara, holding with the hand a plant which he contemplates.‡ The same places of discovery. No coins having Greek words, or the god of the sun.

A man mounted on an elephant; his name illegible, only PAO NANO PAO-KOPANO.§

On the coins of another king of this series, a female figure with a glory, seated on a couch; one foot on the ground, the other, on the couch.* Here also the name is illegible.

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* T. As. III. pl. XII. pl. XXV. IV. pl. LI. V. pl. XXXVI. Trans. R. As. Soc. I. pl. XII. R. R. J. des Sav. 1834. and I. pl. II. and the authorities. I. 57.

† As. Trans. III. p. 443. IV. p. 631. R. R. II. p. 4.

‡ As. Trans. III. pl. XXI. No. 2. XXII. No. 24. IV. pl. XXXVIII. No. 9. No. 7. V. pl. XXXVI. No. 3. No. 7. R. R. II. p. 58. J. des Sav. 1834. No. 10. As. Trans. III. p. 445.

§ A. T. III. pl. LI. No. 10. V. pl. XLVI. No. 13. No. 12. IV. pl. LI. No. 10. A. T. V. p. 722.

There is another type of a figure sitting in a cross-legged position; some other varieties may probably be still discovered.

The most ancient specimens of these coins have a tolerably good style, and distinct letters; both become gradually worse, and lastly deteriorate into a chaos; then follow the Indian imitations. The places of discovery prove, that the Kanerki dynasty possessed, at least at the commencement of their rule, a large territorial dominion; from the traces of the Shiva worship, we may conclude that the Kanerkis added to the worship of Mithra, introduced by them from Bactria, the worship of Shiva, as it occurred with the Kadaphises.† Hence they must (partly at least) have taken possession of the dominions of the Kadaphises. We may consider their dialect either as a more modern one, or as a provincial variety. It is evident from the coins, that they out-lasted the Kadaphises, who never sunk into the same barbarism.

It will remain doubtful, whether the Kanerkis maintained themselves till within the Sassanian period, unless it be decided, that the topes must be ascribed indisputably to the Kanerkis. They certainly reigned in India before the time of the Sassanians. Lastly, the opinion, that the Kanerkis were Buddhists, or in other words, that we have to recognise Kanishka in Kanerki, must continue to be improbable, until Kanerki be also discovered on Buddhistic monuments.

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* A. T. III. pl. XXII. No. 29. IV. pl. 21. No. 9.

† The worship of Shiva appears to have prevailed in Cabul in the first centuries of our era, and beside it, pure Buddhism was widely diffused. Hiuan Thsang at least mentions a temple of Bhîmâ, viz. of Pârvatî or Doorga, in Gandhâra, p. 379. But Megasthenes appears to have already corrected this mistake. For if he reported, according to Arrian and Strabo, that the Indians of the plains worshipped Hercules (whereby Mathura is made mention of) and that the mountaineers, on the other hand, adored Dionysos, these latter must be probably understood to be the inhabitants of the mountainous districts about the Cabul, and below Kazmira, in the Punjab, while the plains are those of the inner country, and on the borders of the Jumna and Ganges. It is true, it has been of late doubted, whether Hercules be Krishna, but I hardly think, one acquainted with these subjects, will doubt it any more, than that Dionysos cannot be but Shiva.

II. *Greek, and Indian characters.*

The coins of Agathokles and Pantaleon alone as yet compose this class.

Agathokles. Diademed head of the king; reverse, a standing Jupiter, with the left hand leaning on his sceptre, holding on the right a small three headed Artemis, bearing a torch. Legend, ΒΑΣΙΛΕΩΣ ΑΓΑΘΟΚΛΕΟΥΣ.[*] Tetradrachma of very superior workmanship.

M. Raoul-Rochette has proved, that the figure on the legend is the Persian Artemis Hecate, the Ζαρῆτις or Ζάρα, whose worship Artaxerxes Mnemon was endeavouring to propagate within his empire, and Bactria is especially mentioned[†] with regard to this. Male head, with Dionysos' crown of grapes. Reverse, a panther walking, holding with his fore claw a grape. The same legend as above mentioned. Tetradrachma.[‡]

Square copper coins with the same legend. On the obverse, a female Bacchanal, flourishing the thyrsus, and the legend above represented, in old Indian characters. Eleven specimens have been discovered, all from Cabul.[§]

M. Raoul-Rochette has tried by a vast display of learning to establish his conjecture, that Agathokles was the first king of Bactria, he having been the Eparch of Persia under Antiochus the second, who is called Pherekles by others, and whose pederasty is said to have excited the Parthian revolt.[||] Not to mention other objections, this conjecture falls to nothing owing to the Indian letters, which Agathokles cannot have used for his Bactrian subjects. But previously to Euthydemos, no Bactrian king made conquests southwards from the Caucasus. As copper coins are less likely to go by trade into other countries than gold and silver (coins,) the place of discovery of the

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[*] R. R. J. des Sav. 1834. p. 332. No. 2. II. No. I. p. 12 A. T. IV. pl. xxv. No. 3. from the Punjaub.)

[†] (J. des S. at other places, p. 340. II. p. 13.)

[‡] (J. des S. No. I. by the way of St. Petersburg.)

[§] R. R. II No. I. II. p. II. A. T. V. pl. xxxv. No. 9.

[||] (J. d. S. p. 336.)

Agathokles' coins points out an empire on the borders of the Cabul river.

The worship of the Persian Artemis must not appear surprising on the coin of a king, who, though not reigning in Bactria, yet started from that country. The Bacchanal symbols certainly allude to an Indian expedition; but it is surprising, that Agathokles and Pantaleon, almost coeval with him, should alone parade these symbols of Dionysos. Going a step further, we dare assert, that Agathokles reigned immediately over those districts, where the traces of the expedition of Dionysos were fancied to be extant; viz. over the country of the Nisaeans. But it is not India Proper, but Cabul, that is celebrated for her grapes; in Cabul too, are the copper coins of Agathokles discovered, and instead of the nation of the Nisaeans (a somewhat fabulous race) of Alexander's period, we observe in the late report of Ptolemy, the well defined town of Nagara, surnamed Dionysopolis, which denomination can have been only given by a Greek king, probably by Agathokles. His use of Indian, and not Cabulian characters, leads to the conclusion, that his reign succeeded a previous use of Indian characters; viz. it argues a former Indian domination in these districts. I therefore think he is the same, who first brought Grecian arms down the Cabul river. According to Mr. Mueller,* he reigned about the Upper Ganges. In this case he must before Menandros have advanced beyond the Hyphasis to the Jumna, and even further, which is at variance with Strabo's explicit statement. His coins, exhibiting a much better style in art than those of Menandros, he must have reigned before this king. Strabo would likewise mention him as the first, who crossed the Hyphasis.

Pantaleon. Square copper coins, exactly like those of Agathokles, before described as from Cabul and the Punjab.† Legend, ΒΑΣΙΛΕΩΣ ΠΑΝΤΑΛΕΟΝΤ(ΟΣ) and the other legend in Indian characters, above mentioned. From the small number of coins it becomes probable, that Pantaleon did reign but for a short time; the dominion, founded by Agathokles, must on the whole have been of short duration. We shall hereafter recur to this subject.

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* p. 213.

† As. Trans. III. p. 168. V. p. 552.

III. *Greek and Cabulian characters.*

§ 1.—*Greek Kings.*

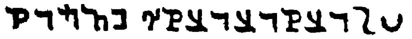
Eukratides. I assign to this place the coins bearing the title "Great King," as they certainly mark an epoch in the life of the one Eukratides, even if they should not belong to a second of the same name. The Cabulian legend never occurs unaccompanied by the word ΜΕΓΑΛΟΥ in the Greek legend; hence it follows, that the title, "Great King" was first adopted in the south of the Caucasus.

Helmeted head of the king. Reverse, the Dioscuri on horseback, with spears couched, holding branches of palms above the shoulders. Legend: ΒΑΣΙΛΕΩΣ ΜΕΓΑΛΟΥ ΕΥΚΡΑΤΙΔΟΥ.[*]

The same with Greek legend on the obverse; on the reverse, *Mahárájó Eikatidó.*[†]

The same reverse with ΒΑΣΙΛΕΩΣ ΕΥΚΡΑΤΙΔΟΥ, and on the reverse with the helmeted[‡] or diademed[§] head of the king; no Cabulian legend.

Diademed head of the king; legend, ΒΑΣΙΛΕΩΣ ΜΕΓΑΛΟΥ ΕΥΚΡΑΤΙΔΟΥ. Reverse, caps of the Dioscuri with palms, of the native legend only *Maharajó.*[||]

According to Mr. Prinsep's statement,[¶] the complete legend is  *mahárájó rajá rájó Eikatidó.* This legend however appears only to occur upon one coin, on which the helmeted head of the king on the reverse has a female figure, seated, with the turret-like crown of the Cybele.[¶¶] The word is *rajá rájó;* it can hardly have occurred upon the other coins. As it cannot be, however, adopted by mere chance, we must ascribe the complete title to that as yet single coin alone. It is the only instance in which a Greek king of Bactria styles himself *king of kings,* and this only in Cabulian language, as it were, not venturing to obtrude this ostentatious title on his Greek subjects. Likewise Eukratides alone calls himself in

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[*] J. des Sav. No. 5. As. Trans. IV. pl. xxv. No. 5.

[†] As. Trans. IV. pl. xxv. No. 8. 9. 10. R. R. I. No. 7.

[‡] As. Trans. IV. pl. xxv. No. 7.

[§] As. Trans. IV. pl. xxv. No. 6. R. R. I No. 6. II. No. 3.

[||] As. Trans. V. pl. XLVI. No. 11.

[¶] As. Trans. IV. p. 338.

[¶¶] According to the description. As. T. III. p. 164.

Greek letters *great king,* while the others adopt the simple βασιλεύς as equivalent to *Mahárájó.* It therefore almost appears, as if Eukratides first used Cabulian legends, without properly attending to the comparative value of the different terms; since the same etymological value of two words in different languages is in many cases not the same in the real acceptation of the words.

Mithridates VI. of Parthia, had adopted the title *king of kings;* and Eukratides seems to have imitated his contemporary in assuming this title.* Coins of Eukratides are frequently met with in Cabul.†

On account of the dispute of numismaticians, we shall postpone the decision, whether we must adopt two or only one Eukratides, to the examination of the historic authorities.

Antimachos. Head of the king with the Macedonian hat, (*kausia*), and Neptune with a palm on the reverse. Epithet of the king, Θεός. A coin, published by Köhler, obtained through Russia, which refers to a victory at sea.‡ Victory dressed and winged, in the right hand a palm. Legend, ΑΝΤΙΜΑΧΟΥ ΒΑΣΙΛΕΩΣ ΝΙΚΗΦΟΡΟΥ. Reverse, the king on horseback gallopping. Cabulian legend, 𐨨𐨱𐨪𐨗𐨯 𐨗𐨩𐨢𐨪𐨯 𐨀𐨟𐨁𐨨𐨑𐨯, *Mahárájó gajavató Atimakhó.*§ From Cabul. M. R. R. has proved, that these coins are an imitation of those of the Seleucidian Antiochos IV., who likewise styled himself Θεός. Antiochos reigned 176—164. B. C., and Antimachos therefore about the same time. The correspondence of these coins with the tetradrachmas of Heliocles will also give evidence, that Antimachos was his contemporary. On this supposition, it becomes difficult to place both of them before Eukratides. The Cabulian legend points to an empire to the south of the Caucasus, but perhaps not in Cabul itself, as the Antimachos' coins are scanty in Beghram. I beg to direct the attention to two points: the equestrian coins form a separated class, and Antimachos has strengthened his dominion by a victory at sea.

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* Visconti. Jconogr. Grecque. III. 76.

† As. Trans. III. 164. v. 547.

‡ R. R. J. des Sav. p. 329. II. p. 18.

§ R. R. II. No. 4, p. 17. A. T. IV. pl. XXI. No. 3. at the same place No. 4 has 𐨑 for 𐨨, therefore perhaps a 𐨑, or k for kh.

Philoxenos. Bust of the king; the bow of the diadem projecting from under the helmet. Legend, ΒΑΣΙΛΕΩΣ ΑΝΙΚΗΤΟΥ ΦΙΛΟΞΕΝΟΥ. Reverse, king on horseback gallopping. Cabulian legend: *Mahárájó apaliható pilashinó (*or *pilushino).*[*]

Demeter Karpoforos; in the right hand a crown; in the left a cornucopia; the foregoing Greek legend; reverse, the bull with the hump. The same Cabulian legend.[†]

The same obverse, with the reverse of a victory with crown and palm (only described).

M. Raoul-Rochette takes him for a king, who reigned in the neighbourhood of the Scythians, and valiantly fought against them on horseback. The Cabulian legend prevents us from acceding to this. Philoxenos wears a *kausia,* as Eukratides and Antimachos do, and as a horseman, moreover, is analagous with them. The bull with the hump is correctly interpreted as referring to a particular country, but to what country, will be evident from the coins of Azes. In Beghram no coins of Philoxenos have been discovered by Mr. Masson.

Archelios. Diademed head of the king. Legend, ΒΑΣΙΛΕΩΣ (ΔΙΚΑ)ΙΟΥ ΝΙΚΗΦΟΡΟΥ ΑΡΧΕΛΙΟΥ. Reverse, Jupiter, seated on a throne, the sceptre in the left hand, the thunderbolt in the right, and the legend, , *maharajó, dhamikó, gajavató Achilijó.* From Beghram.

I have given him this place, because the epithet "victorious" puts him into comparison with Antimachos; Antialkides, however, bears the same epithet, and has besides, the Jupiter.

Antialkides. Uncovered head of the king, with the branch of a palm, crossing the field. Legend, ΒΑΣΙΛΕΩΣ ΝΙΚΗΦΟΡΟΥ ΑΝΤΙΑΛΚΙΔΟΥ. Reverse, the Dioscuri caps with palms, as upon the coins of Eukratides. Legend, *maharajó gajavató Atialikadó.*[‡]

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[*] R. R. II. No. V. A. T. No. IV. pl. xxi. No. 1.

[†] R. R. II. No VI. As. T. IV. pl. xxi. No. 2.

[‡] R. R. II. No. 7. I. No. 15. A. T. IV. pl. xxvi. No. 9. 10. 11.

M. Raoul-Rochette assigns to him with certainty a place immediately following Eukratides, in a neighbouring country, which we cannot, however, look for with him to the North of the Caucasus.* On account of the title Nikephoros, he has some analogy with Antimachos.

There exists another coin of this monarch with the head of the king, with the *kausia* and the same legend; the reverse represents Jupiter, seated on a throne, with a sceptre and a winged victory in his right hand. The same native legend.† All these coins are from Cabul or the neighbouring districts.‡

Lysias. Uncovered head of the king, the palm crossing the field as with Antialkides, the bust partly given. Legend, ΒΑΣΙΛΕΩΣ ΑΝΙΚΗΤΟΥ ΛΥΣΙΟΥ. Reverse, elephant.§ Legend, *Mahârâjô apalihatô lisijô* (lisajô.)

M. R. R. pronounces him with full confidence successor of Antialkides;|| here likewise follow the titles *Aniketos* and *Nikephoros,* one after the other, as above mentioned, with Philoxenos and Antimachos. Coins of Lysias and of Antialkides are found in Cabul; ¶ the elephant alludes to an Indian expedition. The dynasty to which Antialkides and Lysias belonged, seems therefore in fact to have had their site in Cabul, and their empire was probably established upon the ruins of one more extensive.

I here insert a coin, for which I cannot discover a proper place.

Amyntas. Bust of the king with indistinct head-dress; legend, ΒΑΣΙΛΕΩΣ ΝΙΚΑΤΟΡΟΣ ΑΜΥΝΤΟΥ. Reverse, helmeted Minerva, with shield and lance, extending her right hand. Legend, *Maharajô, gajavatô amitô.* From the Punjab.¶¶

We now come to a longer series, bearing the title "deliverer."

Menandros. Helmeted head of the king with the upper part of the bust, and the chlamys; legend, ΒΑΣΙΛΕΩΣ ΣΩΤΗΡΟΣ ΜΕΝΑΝΔΡΟΥ. Reverse, Minerva πρόμαχος. R. R. I. No. 8. Legend, *Maharajô tâdârô Minadhô.*

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* II. p. 23. † As. Trans. V. pl. xxxv. No. 2. ‡ R. R. II. p. 22.
§ R. R. II. No. 18. As. Trans. IV. pl. xxvi. No. 12. || II. p. 24.
¶ R. R. II. p. 24. ¶¶ A. T. V. pl. xlvi. No. 1.

Helmeted head of the king, with the same Greek legend. Reverse, a clothed victory, with wings, palm, and crown. The same Cabulian legend.*

Head of an elephant, with the same Greek legend. Reverse, a club, with the Cabulian legend.†

Uncovered head of the king, with the upper part of the bust dressed in the chlamys; the right hand raised to throw a lance. The same Greek legend. Reverse, Thessalian Minerva, protecting herself with the shield; in the right hand the thunderbolt raised. The same Cabulian legend.‡

Head of the king in a helmet, and the Greek legend. Reverse, Ægis, and Cabulian legend.§

The same obverse; upon the reverse an owl, and the Cabulian legend.||

Obverse, wheel with eight spokes, and the Greek legend. Reverse, branch of a palm, and the Cabulian legend.

Uncovered head of the king, with the Greek legend; reverse head of an animal, which Mr. Prinsep, with probable correctness describes as an elephant, though Mr. Masson has drawn a dolphin. The same Cabulian legend.¶ Lastly, head of a boar, with the Greek legend. Reverse, branch of a palm surrounded by the native legend.**

Coins of Menandros have been frequently discovered in Beghram by Mr. Masson, so many even as one hundred and fifty-three specimens up to the year 1835; they are likewise met with in Agra, on the borders of the Jumna, and near Mathura.†† These were probably the extreme points of his empire. We have shown, that his reign extended to the Jumna, and the elephant on his coins corroborates this extent of his dominion. Whether he also ruled in Bactria, we shall hereafter inquire into; the native legends rather disprove than confirm this opinion.

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* R. R. I. No. 9. 10. As, Trans. IV. pl. xxvi. No. 3.

† R. R. I. No. II. p. 17. As. Trans. IV. pl. xxvi. No. 2.

‡ R. R. II. No. 12. As. Trans. IV. pl. xxvi. No. 1.

§ As. Trans. V. pl. xlvi. No. 5.

|| At the same place, No. 6.

¶ At the same place, No. 8, as the preceding copper coin; according to M. R. R. II. 34. a club.

** At the same place, No. 9.

†† As. Trans v. p. 547. 722. Trans. of the R. A. S. 1. 315.

For the historical arrangement of all those kings, it is of vital importance to ascertain the era of Menandros. M. Raoul-Rochette has most plausibly assigned to Menandros a later period than to Eukratides.[*] The inference he further draws from this position of Menandros, that he first took possession of the Indian empire of Demetrios, and afterwards of the Bactrian dominion of Eukratides, is hardly to be reconciled with the authorities of written history; we do not understand, in fact, how Menandros could dethrone Demetrios, since Eukratides had done it; we shall therefore hereafter lay hold of the only fact which is proved with probability by numismatic inquiry, viz. that Menandros seems to have reigned subsequently to Eukratides.

Apollodotos. Apollo standing, leaning his left hand on the bow, holding a lance with his right. Legend, ΒΑΣΙΛΕΩΣ ΣΩΤΗΡΟΣ ΑΠΟΛΛΟΔΟΤΟΥ. Reverse, a tripod: legend, *Maharajó Apaladató tadaró.*[†]

Uncovered head of the king, with diadem and upper part of the bust, and the chlamys. Legend, ΒΑΣΙΛΕΩΣ ΣΩΤΗΡΟΣΚΑΙ ΦΙΛΟΠΑΤΟΡΟΣ ΑΠΟΛΛΟΔΟΤΟΥ. Reverse, Thessalian Minerva, as upon the coins of Menandros, covering herself with the Ægis instead of the shield. The same native legend, without φιλοπάτωρ, *tâdâró* alone preceding the name.[‡] Elephant in motion. Legend as before mentioned: reverse, the humped bull, and the same native legend.[§]

The coins are discovered at the same places with those of Menandros, and M. Raoul-Rochette deserves the merit of having proved,[*] with the utmost probability, that Apollodotus was the son of Menandros.

Diomedes. The Dioscuri, standing, and with lances. Legend, ΒΑΣΙΛΕΩΣ ΣΩΤΗΡΟΣ ΔΙΟΜΗΔΟΥ. Reverse, the humped bull, and the native legend, which he probably thus restored:

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[*] II. p. 32. 33.

[†] R. R. I. No. 12. As. Trans. IV. pl. xxvi. No. 6. No. 7. No. 8.

[‡] R. R. II. No. 13. As. Trans. IV. pl. xxvi. No. 4.

[§] R. R. II. No. 14. As. Trans. IV. pl. xxvi. No. 5. See. R. R. II. p. 18.

ףרשᴧ ᵗףדדדד (ףצ)דד (ᴗ) *Maharajô tâdârô Dijamidô.** Only one specimen from Beghram. The humped bull, and the epithet, prove the right of position as here given.

Agathokleia. Helmeted head, which must be the head of a woman, with the upper part of the bust, and of the dress. Legend, ΒΑΣΙΛΙΣΣΑΣ ΘΕΟΠΡΟΠΟ(Υ) ΑΓΑΘΟΚΛΕΙΑΣ. Reverse, Hercules seated, in the right hand the club, placed on his knee, with the left supporting himself, as on the coins of Euthydemos. Legend, *Maharajô tâdârô Mikonidô.*†

Howsoever we may read the name, it is certain, that we have here a new king, whose epithet assigns him a place among the successors of Menandros. The place of discovery is not mentioned; the coin is, however, found in India. If any relation is to be admitted between Euthydemos and Agathokles, we may perhaps recognise another analogy in the fact, that Agathokleia exhibits a type of the Euthydemos' coins. She is certainly, however, the wife of the new king, mentioned only in this place; perhaps a heroine of masculine character, like Eurydike (the niece of Alexander, and grand-daughter of Philip), whom her husband honored by associating her with himself upon his coins. May not the unusual epithet perhaps allude to this fact? ‡

Hermaios. Uncovered diademed head of the king. Legend, ΒΑΣΙΛΕΩΣ ΣΩΤΗΡΟΣ ΕΡΜΑΙΟΥ. Reverse, Olympian Jupiter, seated on his throne. Legend, *mahárájó tádáró, hirmajô.*§

Uncovered head of the king, with diadem, the upper part of the bust, and of the chlamys. Reverse, Olympian Jupiter seated, and extending his right hand. Legend as above described.||

Head of the king, probably with diadem, the same Greek legend; the reverse has a horse; and the native legend as above described.¶

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* As. Trans. V. pl. xxv. No. 3. † As. Trans. V. pl. xlvi. No. 2.

‡ I find θεότροπος to be authorized by one passage alone in Heliodor. Carm. v. 250, as an epithet to ζῆλος. Only one Greek king of these provinces, Antimachos, has styled himself God.

§ R. R. I. No. 13 (where the initial letter in tadaro is misdrawn). As. Trans. IV. pl. xxiv. No. 1.

|| R. R. I. No. 14. p. 21. As. Trans. IV. pl. xxiv. No. 2. No. 3. No. 4.

¶ As. Trans. V. pl. xxxv. No. 11.

In Beghram so great a number of the coins of Hermaios have been discovered, that no doubt can be entertained of the seat of his empire. Mr. Masson thought he might adopt, according to the difference of the types, three different kings of this name, an opinion, rejected by M. Raoul-Rochette.* There is no doubt the coins, above described, with the bust, and the name of Hermaios on the obverse, and with Hercules, standing and leaning on the club and the curious native legends on the reverse,† do not belong to the Greek Hermaios himself, as in the Greek legend the name of Kadaphes is substituted for that of Hermaios, without any alteration of the type. Those only upon which ΖΑΘΟΥ occurs, have perhaps a title in another type; all the coins, however, that are published, are very indistinct.‡

As these coins prove that a Kadaphes took possession of the empire of Hermaios, so other facts concur in giving evidence, that Hermaios concluded the series of the Soter dynasty. His coins represent a rapid decline of art, and are *partly excelled by those of the more ancient Indo-Scythians.* M. R. R. has also here the merit of having proved, that the type of the Olympian Jupiter is an imitation of the coins of Alexander II. of Syria,§ and that Hermaios must have accordingly reigned after the years 129—23. B. C.

With Kadaphes, above mentioned, Kadphises is connected by name; but as previously to him, other Indo-Scythians must have ruled in the country on the borders of the Cabul, we shall first insert them here.

Barbarian Kings.

Azes. King on horseback, in his right hand a lance. Legend, ΒΑΣΙΛΕΩΣ ΒΑΣΙΛΕΩΝ ΜΕΓΑΛΟΥ ΑΖΟΥ. Reverse, Minerva, with the Ægis on her arm, in the left hand the lance, the right raised. Legend, *mahárájó rajárájó maható Ajó.*‖ Or reverse, Minerva clothed, holding shield and spear in a moving position.[*] Or, reverse with a male figure in a tight tunic; tiara with ribbands hanging down, and bearing on the right hand a winged Victory. On both of them the same native legend, which is but seldom completely preserved.[†]

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* As. Trans. III. p. 162. v. p. 547. R. R. II. p. 37.

† R. R. II. p. 36.

‡ As. Trans. V. pl. xxxv. No. 13. new coins of this class have been lately discovered, VI. 987.

§ I. p. 19.

‖ R. R. II. No. 15. As. Trans. IV. pl. xxiii. No. 18.

Or, the same obverse; reverse, a male figure, standing, with the tiara, and long stole, holding in the right hand an idol.[‡] As far as traceable, the same native legend. Or, reverse with an Abundantia,[§] standing and holding a cornucopia. Native legend, *maharajô, mahatô, dhamikô rajâdirajô Ajô.* This complete legend is on the reverse not discernible.[||] Obverse, Ceres, seated on a throne, in the left hand a cornucopia, the right raised; reverse, Hercules standing, and leaning on his club.[¶] As far as legible, the simple native legend.

The following coins are of importance, as they mark the provinces, which were under Azes' dominion.

Obverse, the king on horseback. Reverse, the humped bull; on others, a Bactrian camel.[**] Obverse, elephant; reverse, the humped bull.[††]

Obverse, humped bull; reverse, lion without mane,[‡‡] or Bactrian camel.[§§] The Greek legend always the same, and the simple native legend ("without *dhamiko*") on some, *rajarajô ;* on others, *râjâdirâjô.*

Obverse, Neptune clad in the pallium, standing, with the left hand leaning on the trident, the right foot placed on the figure of a man, as if swimming. Reverse, a female figure in a long robe.[||||] M. R. R. has proved, that these symbols allude to the Indus river, and to India conquered. Legends, as above described.

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[*] R. R. II. p. 40. As. Trans. iii. pl. xi. 45. No. pl. xxiii. No. 15.

[†] R. R. II. No. 19. As. Trans. at the same place xxiii. No. 17, No. 19.

[‡] R. R. II. No. 16. As. Trans. iv. pl. xxiii. No. 24. perhaps also No. 20. No. 21.

[§] So in original. Goddess of Plenty.

[||] R. R. II. p. 43. As. Trans. IV. pl. xxiii. No. 22. The legend v. p. 549.

[¶] R. R. II. p. 45. As. Trans. iv. pl. xxii. No. 10. No. 11.

[**] R. R. II. p. 43. As. Trans. IV. pl. XXII. No. 9.

[††] R. R. II. p. 44. As. Trans. IV. pl. XXII. No. 4, 5.

[‡‡] At the same place No. 1, 2, 3.

[§§] No. 6, 7, 8.

[||||] R. R. II. No. 17, As. Trans. IV. pl. XXIII. No. 14.

As now by these coins Azes lays claim to having conquered the Indus, so the four animals evidently point out the extent of his dominion. The Bactrian camel requires no interpretation, nor the maneless lion, which undoubtedly alludes to an Indian district, and though in our time the lion is only met with in Guzerat,* they must in Azes' time not have been confined to that province. I would rather presume, that by the adoption of the lion, the Sinha, the subduing of the lions among Indian men, viz. the Narasinha, Rajaputra was to be represented, therefore the subjugation of the warlike tribes in the modern Rajpootana, which moreover lies beyond† Guzerat. The Indus subjected, refers certainly to the districts towards its mouth, to Pattalene, which on the west is bounded by Guzerat. As now, the elephant likewise points to Indian provinces, a question arises as to what particular province this refers. It must of course allude to that part of India, which must have been likewise under Azes' dominion, viz. to the country to the north of Rajpootana, the Puñjab; yet I confess, I know not why the elephant, which might obviously be used as an emblem for the whole of India, should be made to refer to this part of India alone. A glance at the map must give evidence, that Azes could not allude to any other country.*

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* Mr. Lassen is not aware, of how valuable an argument he has deprived himself in not having ascertained the existence of the lion in our days in Hurriana, where they were a few years ago plentiful; they are now more rare, being driven into the desert by sportsmen, and the gradual settlement of the country. Lions have been shot within the last fifteen years on the banks of the Chumbul, not more than fifty miles from Dholepore.

† I have already observed, that the lion even in our days is known to exist at no great distance from the Indus. It is perhaps worthy of remark in this place, that ample evidence is extant as to the great changes which must have taken place in the localities of wild animals in India, on the testimony of Baber, who mentions killing the rhinoceros on the banks of the Sind and Behreh. "There are numbers in the jungles of Pershawur and Hashhagar,", according to Baber, (A. D. 1526), whereas in our own days that animal is not found to frequent any part of upper India above the Pillibheet forests in Rohilkhund; under these circumstances, it is hard to fix a location for the lion in the days of Azes.

It will be proved hereafter, that the Greek kings also, who have chosen the emblem of the elephant for their coins, must have especially referred to the Punjab.

If then the elephant and the lion allude to India, and if Azes also possessed Bactria, he cannot have typified by the humped bull any other country than that on the Cabul. This interpretation is also very well adapted to the other instances in which this symbol occurs; moreover, the Chinese mention the very same humped bull as an animal they for the first time met with in Kipin ;† the names of Cabura (*gopura*, town of cows,) Kophen, and Koas, are perhaps allied to the name of the animal; on this point, however, the native orthography of these names alone can decide.

Azes, moreover, proclaims himself the possessor of so many provinces, upon those coins, where, besides the ordinary reverse of the king on horseback, the reverse exhibits a Victory,‡ having in the left hand a palm, in the right an indistinct effigy, probably bearing a trident. The native legend is *mahárájó rájarájó maható Ajilisó*. Of this hereafter.

We first mention the coins on which he is seen seated cross-legged, a sword across the knee, while the reverse has a four-armed male figure.§ I think, it certainly represents the Indian god Shiva. He had therefore adopted the Indian worship, as did after him Kadphises, and in some degree the Kanerkis. Azes was either also called *Azilises*, or this was the name of his son and successor. This fact is proved not only by the coins, already mentioned, but also by the following:

King on horseback, with lance depressed, and the Greek legend, ΒΑΣΙΛΕΩΣ ΒΑΣΙΛΕΩΝ ΜΕΓΑΛΟΥ ΑΖΙΛΙΣΟΥ.

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* We have an excellent dissertation by Mr. Ritter, on the extreme boundary within which the lion is found in India, Erdkunde VI. p. 709, to which I willingly refer.

† Ritter, Erdkunde, VII. 684.

‡ R. R. I. No. 16.

§ As. Trans. IV. pl. XXII. No. 12, 13. R. R. II. p. 46.

Reverse, Victory with a palm in her left hand; in the right a trident; native legend, *Mahárájó rájárájó maható, Ajilisó.**

The same obverse, with the reverse of the humped bull, and with the same legends.†

Azilises therefore claims Cabul and the country on the Indus to the sea, and if he were another king than Azes, as I think he was, he must have been his successor, on account of the exact correspondence in their coins.

It is, however, of far greater importance, to determine the period of those kings.

The coins of Azes are so closely connected with Greek types, that he must undoubtedly be a proximate successor of the Greek kings and their dominion.‡ Kadphises and the Kanerkis are at a greater distance. Kadaphes alone pretends to have conquered the empire of Hermaios; and yet, this Kadaphes must have lived, according to the coins, at a later period than Azes. But if then Hermaios reigned about the year 120 B. C., Kadaphes must be of almost the same period; Azes would be, on this supposition, an earlier successor to the other Grecian thrones; he preceded Kadaphes therefore, and must be considered as a cotemporary of Hermaios. We shall hereafter state, to what conclusion the examination of the historic accounts must lead us. As to the matter in hand, M. Raoul-Rochette maintains, that the Minerva type of Azes was imitated after that of Vonones; for as the titles and the monograms on the coins of both kings correspond with each other, Azes must be taken for the successor of Vonones.§

If I be allowed to object to the opinion of so solid as cholar, I venture the following remarks :—

First, the connexion between both of them being ascertained, why does it follow, that Vonones preceded Azes? Certainly neither from the execution of the coins, nor from the historic accounts, would he do so. The Indo-Scythians decidedly reigned on the Indus, previously to Vonones, even if he were the first of this name. Secondly, how can M. Raoul-Rochette reconcile the facts, that Azes was the immediate successor of the Greeks, and was still preceded by Vonones, obviously of Parthian origin. The monograms decide nothing as to the succession. Parthian kings, even Arsakes VI, had, a long time previously to Vonones, the title of "great king of kings." The epithet "just," assumed alike by Azes and Vonones (this escaped the notice of M. R. R.) also occurs much earlier in Parthian history, even in the time of Arsakes VII.* Why must Azes have borrowed these titles from Vonones? As Archelios among Greek kings already styled himself "just," why cannot Azes have adopted this title from him? Lastly, the Minerva type, upon which the whole argument is based, already occurs with Amyntas; why should it not have descended thence to Azes?

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* R. R. II. No. 20. As. Trans. IV. pl. XXIII. No. 27.

† At the same place, No. 28.

‡ R. R. II. p. 47, p. 41.

§ R. R. II. p. 30, 41.

The Vonones under consideration, can hardly be the first of this name, and if M. Raoul-Rochette be right, we must assign Azes to a still later period. I think, however, I have proved, that we shall proceed with more certainty in determining Azes' place by historical accounts, independent of any connexion whatever with Vonones.

It is probable, that such an extensive empire as that of Azes, was not at once overthrown; thus we observe, besides those of Azilises, coins, apparently belonging to successors (of his dynasty); the emblems of the various provinces, however, viz. camel, humped bull, lion, and elephant, do not recur; hence we may conclude, that the successors were not powerful enough to maintain the whole empire.

Some of the coins above (see As. T. 1840, p. 645.) mentioned, perhaps, belong to this class; we would still add the following:

An equestrian coin with ΒΑΣΙΛΕΩΣ ΜΕΓΑΛΟΥ; reverse, king holding a spear, with a Kaftan,† and *mahârâjô*. Azes never has this dress himself; a name is not traceable.

Another coin of a horseman, with illegible Greek legend, and the monogram of the Kadphises' coins. Reverse, two male figures crown the king, who stands between them, and leans on a club. On the native legend are only the initial letters of *Mahârâjô* discernible, and of the name, Ƿ——ɫΛ; the three middle letters should be, according to Mr. Prinsép ˥ᒉʅ; according to the coin, however, this is hardly clear.*

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* Visconti. Iconogr. III. 76, 80.

† As. Trans. IV. pl. XXIII. No. 25.

There is a third equestrian coin, on which a figure of indistinct shape delivers to the horseman a diadem. Greek legend effaced. On the reverse, according to Mr. Prinsep, a Caduceus; the name indistinguishable; we can only read *Mahârâjô*.†

Of the following king, we know but the name of his brother; and even with this clue, his era has not been ascertained. It is Spaliryos, likewise represented as a horseman. The reverse seems to have been much disfigured; the well known type of Hercules seated. The legends are above described.‡

On account of the similarity of the name, we place after him Spalirisos, with Tartarian Kaftan, and a palm over his left shoulder. The reverse is apparently a disfigured form of Jupiter,§ seated, as occurring on the coins of Hermaios. This king appears to have reigned in Laghman, and perhaps also in some neighbouring districts.

As these last mentioned sovereigns still preserve the relics of Grecian art, so also Vonones, who belongs to this class as being a horseman.

The king on horseback, with depressed lance. Legend, ΒΑΣΙΛΕΩΣ ΒΑΣΙΛΕΩΝ ΜΕΓΑΛΟΥ ΟΝΩΝΟΥ. Reverse, Jupiter, clad in the pallium, leaning on the sceptre, in the right hand the thunderbolt.|| On the reverse, a Victory without wings, in the left hand a palm, in the right something indistinguish-

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* As. Trans. V. pl. XXXV. No. 5. from the Punjab. The position of the horseman is quite the same with the Parthian Artaban III.

† As. Trans. V. pl. XXXV. No. 15. pl. XLVI. No. 14. V. XXXV. perhaps belongs too, to this king.

‡ See As. Trans. IV. pl. XXI. No. 9. V. pl. XXXV. No. 6. R. R. II. No. 9. From the Punjab and Beghram. R. R. II. p. 26. As. Trans. V. p. 551.

§ R. R. I. No. 21. As. Trans. V. pl. XXXV. No. 7. IV. pl. XXI. No. 7, six specimens from Manderor in Laghman. As. Trans. V. p. 551.

|| R. R. II. No. 10.

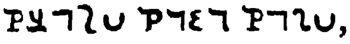
able.* The same Greek legend; the native one has been already mentioned.

Lastly, Hercules, the lion's skin in the left hand, the club on his arm, crowning himself with the right; reverse, Minerva, *νικηφόρος*, with a helmet; on her left hand the shield, and holding on her right hand a winged Victory.† According to the native legend, the word ΔΙΚΑΙΟΥ must have occurred here instead of ΜΕΓΑΛΟΥ

I think I have already proved, that the name Vonones cannot have occurred in native characters on the reverse of these coins, but probably the name Volagases; and further, that this Vonones need not have been, according to the coins, a predecessor of Azes. On comparison with other Parthian coins, it is likewise evident, that Vonones, in striking coins for his Cabulian subjects, followed the coinage of Cabul, and not of the Parthians. To trace the period of Vonones from coins, purely Parthian, would therefore be fallacious.

Another fact to determine the era of Vonones offers itself in the following. The initial letter of the Parthian coin, above described, is M. The Roman Victory on this coin, renders it necessary to assign to this king a later period than to Vonones I. who first of the Arsacides adopted this type.‡ This also leads to Meherdates, who was educated in Rome, and the initials of the name are more like ME than MO; but this does not decide the question, whether it were Vonones the First or the Second.

As we have now to admit among the sovereigns of Cabul, not Greeks, but Parthians also, who probably reigned after Azes, (on this hereafter), so a dynasty succeeded the great Indo-Scythian, which assumed the Soter-title of the Greeks. As Azes does not bear this title, they are probably not his descendants.

First, a nameless king, a horseman like Azes, with the legend [ΒΑΣΙΛΕΥΣ] ΒΑΣΙΛΕΥΩΝ (sic) CΩΤΗ[Ρ] the name is effaced. The reverse presents a male figure walking, with the left hand extended; in the right an elevated spear, with a peculiar head-dress, the left shoulder naked, otherwise clad in a robe after the fashion of the Gods on the Kanerki-coins. Legend, , *mahatô tadharô maharajô* ; the name is also here effaced.*

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* R. R. II. No. 14. of the coin. As. Trans. IV. pl. XXI. No. 15. I do not venture to trace the reverse.

† R. R. II. p. 30. I. No. 20. As. Trans. IV. pl. XXI. No. 10.

‡ Visconti Iconogr. III. 146.

The monogram on this coin is now the very same with that of the nameless Soter-megas, and we must recognise here, if not himself, yet a near successor of his. The Greek characters do not allow us to connect this king, or the nameless Soter, with the Greeks.

This Scythian Soter dynasty, however, prove themselves as of the same period, or as directly succeeding, the Arsacides abovementioned, by the following coins, namely by those of Yndopherres. Having the same title, the same Greek characters, and, besides, the Victory of the Arsacides, he is allied to them. He is a complete barbarian in comparison with Azes, and if Yndopherres indeed succeeded the Parthians, Azes may claim an earlier era. Yndopherres, however, endeavours to keep the Greek style of the stamp, while the Kadphises, about to be mentioned, has removed every trace of Grecian art, save the characters, on which he also obtrudes words of his language.

Kadphises. The king on a low seat, bearded, in a high Tartar cap in the form of a cylinder, from which flowing ribbands descend, in a Kaftan and Tartar boots, holding a branch in his hand. In the space below, a club. Reverse, Siva in a light dress, the left hand on the bull Nandi, in the right the trident. There occurs the complete native legend above described; the Greek is the short one.†

The king standing in the same dress, the left hand on his hip, holding the right over a small altar, above which, a trident; in the left space a club (or a sceptre) the long Greek legend; the reverse as above described.‡

Bust of the king, in the right hand sceptre or club; above the cap, the moon-formed sickle (of Siva); in the left a small hammer, short Greek legend. Reverse, Ardhanari, holding in his right hand a long trident, in the left the discus and pasa of Siva; the complete native legend.* The same reverse; the bust facing the right.†

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* As. Trans. IV. pl. XXIII. No. 23.

† R. R. Journal des Sav. No. VIII.

‡ Trans. of the R. A. S. I. No. 10. R. R. I. No. 23. p. 30. As. Trans. III. pl. XXVI. No. 4. No. 5. V. p. 547. From Balkh, from Beghram and Manykyâla.

Lastly, the king on a carriage with two horses; over the shoulder the club, in no proportion with the charioteer; the short Greek legend. Reverse, Ardhanari with the native legend.‡

As copper coins of Kadphises are dug out even near Benares,§ he must have reigned from Beghràm to a great distance in India Proper. The execution of these coins is indeed still Greek, but whenever the worship of Siva is represented, the types have become purely Indian. This worship first appears, though not frequently, with Azes, is exclusive with Kadphises, and is joined by the Kanerkis with Bactrian gods, who have the same monogram with Kadphises, and are found together with his coins.‖ There is scarcely any doubt, that Kadphises was a near predecessor of the Kanerkis. His relation to Kadaphes is more obscure. It is clear, that Kadphises has some reference to him, save that the former is more ancient, because he is immediately connected with Hermaios. This king (or the last of his name) was limited to Beghram, and this must have been the principal seat of Kadaphes, though his dominions were of further extent. Now it is a singular fact, that according to the Chinese accounts, the ancient (Scythian) empire of Gandhara was situated in Kiapiche (Capissa), and therefore just beyond Beghram, while the native legend expresses the name Kadphises by Kapisa; this is accordingly the name of the country in the form of pronunciation delivered to the Greeks and Chinese, which name, however, appears to be an absorption from Kadphisa. If the name however be a geographical determination, a new enigma is given, and Uhavima must be understood in this case as a proper name. But it is at variance with this supposition, that Kadaphes should bear the same name. Or is this perhaps a title, and the same case with the nameless *Soter-megas*.

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* R. R. I. No. 22. From Cabul in a tope. R. R I. 28. II. 4. 56. J. des Sav. p. 390.

† As. Trans. IV. pl. XXXVIII. 4, No. 2, 3.

‡ The same No. 1.

§ As. Trans. p. 631.

‖ As. Trans. IV. 631.

It would be also desirable to ascertain in an approximative degree the relation of Kadphises to the Scythian Soter family. Yndopherres, like Kadphises, appears to have reigned in Beghram;* but the former is allied to the Parthians, the latter to the first Azes; the first has ruder coins, though a classic style; the second, types of a better, although of entirely Indian execution, with an assimilation to Azes by the Siva-worship, while his relation to Kadaphes places him nearer Hermaios; he appears therefore more ancient than Yndopherres. The only objection would be, that the latter in this case is thrown between Kadphises and Kanerki. If the equestrian coins allude, as I presume, to a more westerly country than Gandhara, the solution is perhaps given by the conjecture, that Yndopherres and the Soters, closely allied to him, reigned as horsemen in a more westerly direction than Kadphises and Kanerki; they might therefore rather be placed near either of them, than between them; but I willingly abandon this uncertain base of argument.

It will be proper to look out for firmer grounds upon which we may classify the many dynasties, above enumerated.

§ 15.

Greco-Bactrian Kings.

Let us turn now to the examination of the written accounts of the history of the Greeks in Bactria. Bactria continued under the dominion of the Seleucides to the period of Antiochus II. (262—247. B. C.) when Theodotus took advantage of the weak government, and probably of the wars of that monarch with Ptolemy II. to render himself independent. This separation of Bactria from the monarchy of Antiochus happened a short time before the declaration of independence by the Parthians, or previously to 256 B. C. as appears from the fact, that Arsaces, the founder of the Parthian empire, had fled from the increasing power of Theodotus.[*]

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* According to the number of coins, there discovered. As. Trans. V. p. 547.

We do not know how far the power of Theodotus extended. Sogdiana was perhaps subjected to him, but it is hardly credible that the thousand towns which Justin attributes to him, to show his power, really existed in his dominions. Bayer plausibly conjectures, that these thousand towns were erroneously transferred by Justin from a notice on Eukratides, to the founder of the Bactrian empire.[†] The passages show only that Theodotus contrived the conquest of Parthia, while the aggrandisement of the Bactrian power is ascribed to Euthydemos.

In opposition to the explicit authority of these authors, M. Raoul-Rochette has endeavoured to establish Agathokles as the founder of the Bactrian empire.[‡] It is true, the eparch of Persia under Antiochus II. is called sometimes Agathokles, and sometimes Pherekles; but our Agathokles reigned in a province of India, and previously to Euthydemos the Bactrian dominion did not extend so far southward.

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[*] Prolog. Trog. Pomp. XLI. " In Bactrianis autem rebus, ut a Diudoto rege constitutum imperium est." Just. xli. 4. On Arsaces: " Non magno deinde post tempore Hyrcanorum quoque regnum occupavit, atque ita duarum civitatum imperio præditus, grandem exercitum parat, metu Seleuci et Theodoti, Bactrianorum regis. Sed cito morte Theodoti metu liberatus, cum filio ejus et ipso Theodoto fœdus ac pacem fecit. Strabo xi. c. 2. p. 515 " Νεωτερισθέντων δὲ τῶν ἔξω τοῦ Ταύρου διὰ τὸ πρὸς ἀλλήλους εἶναι τοὺς τῆς Συρίας καὶ τῆς Μηδίας βασιλέας, τοὺς ἔχοντας καὶ ταῦτα, πρῶτον μὲν τὴν Βακτριανὴν ἀπέστησαν οἱ πεπιστευμένοι, καὶ τὴν ἐγγὺς αὐτῆς πᾶσαν οἱ περὶ Εὐθύδημον." § 3. p. 515. on Arsaces, " οἱ δὲ Βακτριανὸν λέγουσιν αὐτόν. φεύγοντα δὲ τὴν αὔξησιν τῶν περὶ Διόδοτον, ἀποστῆσαι τὴν Παρθυαίαν.

But there was no long interval between both insurrections. Justin, xii. 4, fixes the defection of the Parthians as under the consulate of L. Manlius Vulso, and M. Atilius Regulus; " eodum tempore etiam Theodotus, mille urbium Bactrianarum præfectus, defecit, regemque se appellari jussit. Quod exemplum sequuti, totius orientis populi a Macedonibus defecere." But who were they, unless the Parthians?

[†] p. 47. [‡] J. des Sav. 1834. p. 334.

There have not yet been discovered coins of Theodotus and his son of the same name, and they can only come from Bactria.

Whether another king reigned between Theodotus II. and Euthydemos, is unknown, but not improbable; the one fact is certain, that the latter sovereign dethroned the family of Theodotus, for he alleged this very act in order to obtain the favour of Antiochus III.*

Upon Strabo's authority, above mentioned, Euthydemos took possession of the districts adjacent to Bactria; Parthia cannot be understood by this, he must have meant Aria and Margiana; he had at least collected against Antiochus an army of horsemen on the borders of the Arius,† and had already fought against the northern nomades, he must have, therefore, certainly possessed Sogdiana, and to him probably refers the notice, that the Greek kings of Bactria divided their empire into Satrapies.‡

We owe to the expedition of Antiochus against upper Asia, a clearer insight into the circumstances of those countries at that period. This war, and the negotiations between the Syrian and the Bactrian kings belong to the years 208-5. B.C. From Polybios' account, which is extant, it follows, that the Parthian empire, at that period, was still limited to Hyrcania and Parthia, and the Scythian nomades to their northerly heaths, though even menacing invasion. Among the conditions of peace occurred likewise the following stipulation,—that Euthydemos was to surrender his elephants; hence we may presume, that although he had made no expedition on the south beyond the Caucasus, yet, he must have entered upon connexions with India. At that time he had not yet a firm footing southward of the mountains, as we find there the king Sophagasenos, who concluded an alliance with Antiochus, delivered over to him some elephants, and agreed to pay him a certain sum of money. The Indian king apparently engaged in this league as a protection from Euthydemos, whose power had already manifested itself in the south of the Caucasus. As it is called a renewed treaty, this Indian king must have belonged to the dynasty of the Palibothrian princes, who had always been in friendly relations to the Seleucides. We can indeed prove hereafter, that from the time of Seleukos Nikator, those Indian kings possessed the country west of the Indus to the Caucasus,* and hence it arises, that the Bactrian kings, down to the time of this peace, had no possessions in the south of the Caucasus, and only when Antiochus entangled himself in disputes with Egypt, and thereby with Rome, were they at liberty to engage in plans for an invasion of India; that is therefore about the year 203 B. C.

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* Polyb. Fragm. xi, c. 34. Schw. III. p. 379. γεγονέναι γὰρ οὐκ αὐτὸς ἀποστάτης τοῦ βασιλέως, ἀλλ' ἑτέρων ἀποστάντων, ἐπανελόμενος τοὺς ἐκείνων ἐκγόνους, οὕτω κρατῆσαι τῆς Βακτριανῶν ἀρχῆς

† Polyb. x. 49.

‡ Strabo, xi. 11, 2. οἱ δὲ κατασχόντες αὐτὴν Ἕλληνες, καὶ εἰς σατραπείας διῃρήκασιν· ὧν τήν τε Ἀσπιώνου καὶ τὴν Τουριούαν ἀφῄρηντο Εὐκρατίδαν οἱ Παρθυαῖοι. Ἔσχον δὲ καὶ τὴν Σογδιανὴν κ. τ. λ. The two satrapies mentioned, evidently lie toward the northerly Scythian country, the frontier of Sogdiana. The' Ἀσπασιάκαι (Strabo, xi. Scyth. 8.) to whom Arsaces fled, belonged to the Chorasmians and Attasians, who have likewise the name Αὐγάσιοι; perhaps we ought to read Ἀσπάσιοι. Polyb. (x. 48.) calls all Nomades about the Oxus *Aspasiaces*, which is therefore a general term for the nations of horsemen (*Azpa*, horse). Mr. Burnouf undoubtedly explains with propriety Turiana by the word of the Zend Tûirja; it is the Turan of Firdusis; the Turanian satrapy of Bactria, according to Strabo.

Antiochus effected his retreat through Arachosia and Drangiana, and there is no reason to doubt, that both countries were still under the dominion of the Seleucides.†

Demetrios, the son of Euthydemos, then a youth of remarkable beauty, had a principal share in concluding the peace with Antiochus, whose daughter was given him in marriage.

This Demetrios however is afterwards not mentioned as king of Bactria, but of India ("Demetrii regis Indorum"‡) fighting with Eukratides for the dominion of Bactria, and eventually conquered and deprived of India by this king. We do not know, whether he originally succeeded his father in Bactria, and was expelled from thence, and limited to his Indian possessions, being eventually deprived of them also, or whether some one embraced the opportunity of his absence from Bactria, while he was perhaps engaged in an expedition against India, after the death of his father, to take possession of the Bactrian throne.* Nor do we know, whether Eukratides or a predecessor of his, expelled the family of Euthydemos from Bactria.

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* De Pentap. Ind. p. 42—45.

† By the notice, that Seleukos had also yielded Arachosia to Kandragupta, we have certainly to understand but the district eastward of the sources of the Helmund and the Lora.

‡ Justin. xli. 6.

The opinion which most naturally suggests itself is, that Eukratides expelled them; up to this time, however, Menandros has been ordinarily considered as king of Bactria before Eukratides, though some say, Apollodotos, probably the son of Menandros, or, lastly, Heliokles, whom we know only from the coins. The opinions maintained as explanatory of these different successions to the throne of Bactria, must exceedingly differ one from another, on account of our defective information; and were we to examine these opinions, it would be evident, that all of them are more or less artificial and forced, and even dogmatical. But instead of subjecting them to a critical review, it will suffice our purpose to refer (Bayer, p. 85—89. R. R. I. 34. II. 33,) to them, and to attempt arranging the facts in the way in which, from our own comparison of the respective passages, and the new results derived from the coins, we think we must needs consider them.

First; the conjecture of adopting three kings in Bactria between Euthydemos and Eukratides, appears somewhat improbable. Menandros is among them, whose reign cannot have been a short one, since we know that he had made great conquests in India, and gained by his justice the general attachment of his subjects. On this fact we have the authority of Plutarch and Strabo.[*]

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* M. R. R. infers from the coins, that Demetrios, although for a short time, did also reign in Bactria. This conjecture is not improbable, though the conclusion of R. R. does not appear to me to be founded on a firm basis.

Secondly; the respective passages, more carefully considered, do not render it necessary to consider Menandros as a king of Bactria, but they are rather at variance with this view.

Plutarch makes no mention of Menandros but accidentally; and the great conqueror is so little known to him, that he calls him, "*one Menandros.*" As now even Strabo, though he had before him the book of Apollodoros of Artemita, the very best authority for this history, does not distinguish in a remarkable manner the separated dominions of the Greeks in India, a fact fully established by the evidence of the coins; we cannot be surprised, that Plutarch in later days, confounded the separate Indian empire with the Bactrian one. The expression he uses, does not therefore oblige us to consider Menandros as king of Bactria.

Strabo, when summing up in his passage the greatest extent of power on the whole, any where attained by those Greeks who rendered Bactria independent, mentions Menandros as the sovereign who advanced farthest towards India; but he is not named there as king of Bactria, nor does this follow from a passage conceived in such general terms as this is. If we do not explain this passage as intended to give a general view, but rather limit the facts mentioned to Menandros and Demetrios, they would be considered by Strabo as those that stirred up Bactria against the Seleucides, and who had also possessions in the country of the Scythian nomades; now the first statement would be false, and the second improbable.

Lastly; the following passage, (Prolo. Trog. Pomp. XLI) "*Indicæ* quoque res additae, gestae per Apollodotum et Menandrum, reges eorum. *Bactria* was, it is true, already mentioned, but why should this prevent a suspicion, that in such an extract the expression was too concisely given, and that instead of explaining " eorum " by " *Bactrianorum,*" we should not rather supply "*Indorum*" from " Indicæ ?"

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[*] Plutarch de Rep. Ger. p. 821.

Μενάνδρου δέ τινος ἐν Βάκτροις ἐπιεικῶς βασιλεύσαντος, εἶτα ἀποθανόντος ἐπὶ στρατοπέδου κ. τ. λ.

Strabo. XI. p. 516. We shall hereafter examine this passage.

I infer from this discussion, that none of the passages cited necessitate our considering Menandros as a Bactrian king, and still less Apollodotos. It is only certain, that Menandros made great conquests in India; we must therefore have recourse to the coins.

Thirdly ; these coins always exhibit Cabulian letters as their symbols, and their places of discovery, moreover, refer to an Indian empire, and we may justly assign Menandros and Apollodotos to the history of the Indo-Grecian kingdoms.*

Now as to Heliokles :—

This king, mentioned by no author, must have his place assigned him on numismatological grounds alone; but different conclusions have been drawn from them by different writers. Visconti, and M. Raoul-Rochette think him earlier than Eukratides ; in this case he might be the very same who removed the Euthydemides from the throne, and the epithet, " the just," might allude to his retributive justice towards the family of the usurper Euthydemos. M. Mionnet takes him for the successor, and even for the murderer, of his father Eukratides. In this case he was perhaps the last Greco-Bactrian king. The numismaticians may settle this dispute among them. There is ample room for him, as well before as after Eukratides, if even *two* Eukratides be adopted. †

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* See Mr. Mueller, p. 208.

† Visconti. Icon. III. p. 253. R. R. II. p. 20. p. 26. Mionnet VIII. p. 470. M. R. R. concedes (p. 20) that Heliokles was coeval with his Eukratides II.; but supposing now, that there were *two* Eukratides, or say even, there were only one, how can Heliokles, who has no claim whatever to having possessed any empire save Bactria, have been coeval with Eukratides, unless he were his immediate predecessor or successor? The numismatological reason for assigning to Heliokles an earlier era, seems not to be very evident, as M. R. R. does not mention any certain fact. Visconti's inference, drawn from the epithet, is wholly inconclusive. But how can we reconcile, that in vol. II. p. 20, M. R. R. should make Heliokles a contemporary of Eukratides, while in vol. I. p. 33, he is considered the successor of Demetrius, predecessor of Antimachos, and pre-predecessor of Eukratides I? M. Mionnet explained the epithet of Heliokles, by the passage of Justin, in which he prides himself on the murder of his father as of a good deed. If he were indeed the son and successor of Eukratides, this interpretation of

However Demetrius may have been deprived of the Bactrian throne, it is established, that he founded an Indian empire; thence attacking Eukratides in Bactria, he was conquered by this king, who then took possession of India also.[*]

Let us first settle where we have to look for the empire of Demetrius. Strabo, in the passage where he takes a general view of the conquests of the Greek kings, mentions two of them, Demetrios and Menandros, as the greatest conquerors. These conquests included partly Ariana, by which Strabo means the country of the Paropamisades, Arachosia, and Gedrosia; and partly countries to the north of Sogdiana. The mention of the Serians does not lead us to *China*, as has been objected to that reading, but to the *Issedon Serica* of Ptolemy, on the borders of the Achardus, whether it be Yarkiang or Kaschgar, and where indeed is the improbability of this supposition? This is the construction of the geographer, Dionysios (p. 752,) Καὶ Τόχαροι, Φρούγοι τε, καὶ ἔθνεα βάρβαρα Σηρῶν." These conquests lastly included districts towards India, and this in two directions, in India Proper, beyond the last river reached by Alexander, beyond the Hyphasis to the Jumna, and down the Indus to the sea, comprising the Delta of Pattalene, and further to the east Surastra or Guzerate, extending along the shore.[†]

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the epithet would be most acceptable, were it not wholly preposterous; for M. R. R. says, (II. p. 20.), "Cette idée est si extraordinaire, qu'elle ne comporte pas une discussion serieuse. Jamais en aucun temps et dans aucun pays du monde on n'a bravé l'opinion publique, ni outragé la raison et l'humanité au point de pretendre couvrir un parricide par le titre *Juste.*" I however will not venture "tantas componere lites." It affords me extreme pleasure to learn, that the science of Numismatics is the only one which does not submit to force, and pay homage to crime, that it has even necessitated such an abominable monster as the son and murderer of Eukratides to preserve upon his coins, that respect for public opinion, which he elsewhere so boldly violated!

[*] Justin. XLI, 6. Strabo XI. 1, p. 516.

[†] Τοσοῦτον δὲ ἴσχυσαν οἱ ἀποστήσαντες Ἕλληνες αὐτὴν (Bactria) διὰ τὴν ἀρετὴν τῆς χώρας, ὥστε τῆς Ἀριανῆς ἐπεκράτουν, καὶ τῶν Ἰνδῶν, ὥς φησιν ὁ Ἀπολλόδωρος ὁ Ἀρταμιτηνὸς, καὶ πλείω ἔθνη κατεστρέψαντο ἢ Ἀλέξανδρος, καὶ μάλιστα Μέ-

It has not been noticed, what direction the conquests of Demetrius followed; those of Menandros, it is said, were directed against India Proper. But who then conquered Ariana? Who Pattalene? Who the country of the Serians? Strabo makes no distinctions there, and the last country at least, could have been hardly conquered by Demetrius or Menandros, though we must probably ascribe the conquest of Pattalene to either of both kings. But to which?

νανδρος. εἴγε καὶ τὸν Ὕπασιν (edd.---*νιν*) *διέβη πρὸς ἕω, καὶ μέχρι τοῦ Ιομάνου* (edd. *Ἰσάμου*) *προῆλθε, τὰ μὲν γὰρ αὐτὸς, τὰ δὲ Δημήτριος ὁ Εὐθυδήμου υἷος τοῦ Βακτρίων βασιλέως. οὐ μόνον δὲ τὴν Πατταληνὴν κατέσχον, ἀλλὰ καὶ τῆς ἄλλης παραλίας τήν τε Σαριόστου* (or *Σαραόστου*) *καλουμένην, καὶ τὴν Σιγέρτιδος βασιλείαν. Καθ' ὅλου δέ φησιν ἐκεῖνος τῆς συμπάσης Ἀριανῆς πρόσχημα εἶναι τὴν Βακτριανήν. Καὶ δὴ καὶ μέχρι Σηρῶν και Φρυνῶν ἐξέτειναν τὴν ἀρχήν.* The alterations *Ὕπασιν* and *Ἰομάνου*, "are perhaps necessary." *τε Σαριόστου* occurs together with *Τεσαριόστου* in the manuscripts. Mr. Prinsep (As. Trans. VI. p. 390) first noticed, that by this Surâshtra was to be understood. Apollodoros has perhaps mentioned a king, who was named after his country, as Taxiles was already before named in the same manner. Ptolemy has *Συραστρήνη*; according to him, it is the country between Cutch and the river Mahi, therefore Guzerate, Sigertis (in Sanscrit perhaps Srigarta) must be the coast round Barygaza; Ptolemy has, on the south of the Nerbudda, the town Siripala (Sripala) which perhaps denotes the same name. In Sanscrit this coast has the name of Lata (pronounced Lara) whence the Larice of the ancient authors.

"It is also called Surashtra, and its inhabitants *Surashtras*, the royal and excellent royal offspring. Another name for it is *Gurjjara-rashtra*, or kingdom of the *Gurjjaras* or *Gurjjas* in conversation. Hence it is called the country of *Gourz* or *Giourz* by one of Renaudot's Musalman travellers in the ninth century. From Surashtra and *Gujjara-rashtra* they have made, in the spoken dialects, Surat, and Gurjjarat, and even Gujjerat." Essay on the ancient Geography of India, M.S.S. No. 277. Library As. Soc. of Bengal.

(To be continued.)

Abstract Report of the Proceedings of the Committee appointed to superintend the Boring Operations in Fort William, from their commencement in December, 1835, *to their close in April,* 1840.

Several attempts have at different times been made to supply the deficiency of good water in Fort William, by boring through the strata on which it stands, in search of subterranean springs. The present operations, which form the most recent of the series, were originally commenced in December, 1835, but the site then selected was shortly afterwards abandoned in consequence of the operations having been impeded by a dislocation of the joints of the metallic tubes lining the bore. As all attempts made to rejoint the dislocated tubes proved unsuccessful, the Committee selected a new locality closely adjoining, however, to that of the original bore, no advantage being anticipated from any change of site within the limits of the Fort, the succession of strata, and the circumstances of their disposition, being alike within so small a space.

On the 2nd of April, 1836, the operations of the Committee were resumed, by commencing the excavation of a shaft, ten feet in diameter, ten feet in depth, interiorly rivetted with good masonry, and having its bottom strongly planked, with masonry continued over the planking. A boarded floor with a central trap door moving on hinges so as to admit of access to the shaft, as occasion might require, covered the top. A large gin (Sketch No. 1) filled with the necessary tackling for working the rods and tools, and having a wooden platform supported by massive timber uprights, on which a heavy weight of guns was placed to give the requisite stability, was erected over the shaft. The rods, &c. were originally worked with ropes, but the expenditure of these became so serious as to lead to their being replaced by strong chain cables, which were found in every respect superior. Two chains attached to the ring of a brace-head passed subsequently through a triple block fixed to the apex of the gin, and were then led to two powerful crabs, firmly bolted to large fixed sleepers, at about fifteen or eighteen feet from the gin. A chain was attached to each crab, and on the screw of the upper rod being entered into the brace-head, the crabs were worked simultaneously, and the power of both thus brought to bear in raising the mass of the rods, or in any other necessary manner.

On the 28th of April the actual excavation of the bore was commenced with a six inch auger, being that adapted to the tubing it was intended to employ. On the depth of 120 feet being attained, the quicksand, which had rendered the first attempt abortive, was again met with. The experience of its previous effects had rendered apparent the necessity of securing firmly the joints of the tubes, which was accordingly done by means of four short, but strong screws, in the manner represented in sketch No. II. To this precaution the success of the work so far was undoubtedly to be attributed, as the difficulties were found most serious from the loose, even semi-fluid, consistence of the sand, which on the removal of a portion of the water, then standing in the tubes within 15 feet of the surface, immediately rose to seventeen feet, and though the work was continued night and day, actually rose faster than its removal could be effected, so that at the end of eleven days and nights of incessant toil, it had risen from 124 to 103 feet.

Hence it became evident, that the only mode of overcoming the obstacles presented by the sand, was to force the tubes down till coming in contact with some firm stratum, the sand should be excluded; by unrelaxing perseverance and much labour, frequently with an advance of not more than a few inches in the day, the tubes at length attained a depth of 157 feet. The sand was then perceptibly gained upon, and at 159 feet a stiff clay was reached, and the borer which during the prevalence of the sand was always behind the tubing, now passed it, and in twenty-four hours attained a depth of 175 feet.

The open auger it was found could not be used with effect except in working through clay; a valved instrument, therefore, called the "Mudshell," had hitherto been employed for raising the sand. This tool however here became useless, from some defect in the action of the valve, which failed either to admit or retain the sand, now coarse and gravelly, and in consequence it was found impracticable to penetrate with it beyond 175 feet. One of the augers however being fitted with a valve, and otherwise altered so as to retain the sand, was employed with partial success, but not to an extent sufficient to prevent the sand rising in the tubes, since after working twenty-one days, and the tubing having been forced down to a depth of 177 feet 2 inches, it was found impossible to work the auger lower than 167 feet 10 inches ; occasionally a partial advance was made, but it was neither permanent nor certain, from the constant variation of the height of the sand in the tubes.

On entering the stratum of stiff clay, above alluded to, the night-work had ceased, but it was again found necessary to resume it, as the only means of overcoming the existing difficulties. The effect of this was to carry the bore successfully to a depth of 182 feet 8 inches by the 27th of July, when a temporary suspension of the operations took place, from the supply of rods having become exhausted. It may be mentioned, that for some days prior to this date considerable inconvenience had been experienced by the stoppage of the borer, both in its ascent and descent, by some obstacle, the nature of which could not be ascertained. Had it been constant in its position, it might have been anticipated that the tubing had again been dislocated or forced from the perpendicular, but so far from this being the case, the borer occasionally descended and was brought up without the least difficulty ; this temporary intermission was followed by the re-appearance of the impediment ; again it intermitted, and latterly disappeared altogether.

A further supply of the rods having been obtained from Delhi, the boring was resumed on the 13th October, 1836.* During this interval of suspension, however, it was found that the tubes had sunk by their own weight from 183 to 187 feet, and the bore could now be worked to the depth of 189 feet. By the 10th November following, a depth of 238 feet 5 inches had been attained, the chief difficulty in prosecuting the work arising from the imperfect action of the instrument employed in raising the sand, in consequence of which the whole contents of the shell were frequently removed during its passage to the surface. To the construction of the valves of such instruments, much attention ought therefore to be paid, as on the effective action of these, the progress of the operations is most essentially dependant.

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* The following singular circumstances connected with these Delhi rods, may here be placed upon record, though it has been found impossible to obtain any satisfactory explanation of their origin or cause.

1000 feet of rods, in lengths of 20 feet each, were received from the Court of Directors at one time ; 500 feet of these were taken indiscriminately for the Fort Operations, and the remaining 500 feet were forwarded to the Magazine at Delhi. On the occasion of the supply in the Fort becoming exhausted, a portion of those sent to Delhi were called for, and 200 feet were in the first instance received, subsequently followed by the remaining 300. On working the two sets together a remarkable difference was observed between them. Under equal strains the rods obtained from Delhi twisted and bent with the utmost facility, while those employed in the Fort operations continued rigid and straight, so that ultimately the latter alone could be used in the daily work, the others being laid up in store as useless. Had this flexibility been confined to a portion of the Delhi rods, it might have been explicable on the supposition that some flexible rods had been intermixed with the rigid ones, but it was equally observable in the whole 500 feet of them, so that this explanation can scarcely be admitted, especially when it is remembered that in the first instance no sort of selection was employed. The strength of the Delhi was however considerably greater than that of the Fort rods ; the former bearing a strain of 19.6 tons on the square inch, without breaking ; while the latter yielded to a strain of 16.2 tons per square inch.

On the 15th November, an attempt was made to bring up some water from the bottom of the bore by lowering a bottle with a large brass plummet attached to it, to cause it to sink; but unfortunately before it could be raised, the connecting string broke, and the plummet was left below. Considerable anxiety was excited by this, from the anticipation (subsequently realized) of the auger coming in contact with the plummet, and being jammed within the tubing. On arriving at the depth of 271 feet, the lower part of the mudshell, including the valve, from some unknown cause broke off, and remained at the bottom of the bore. This accident caused much trouble, but after various attempts to extricate the fractured shell, the perforation of an aperture in it, by the use of a jumper, admitted of a strong conical worm auger being screwed into it, and by the hold thus obtained, it was successfully raised to the surface.

At the depth of 324 feet the borer came in contact with the long lost plummet, and became so firmly jammed between it and the tubing as to foil every effort made for its extrication, though the force applied at one time was so great as to raise the whole body of the tubing about 4 inches, the weight of this being certainly not less than 7¼ tons, exclusive of friction. To guard against the inconvenience of an accidental fracture of the rods at any considerable distance beneath the surface, while they were subject to such strains, Captain Thomson of the Engineers suggested that the uppermost rod should be made *thinner* and *weaker* than those within the bore (so as to give way first) but yet capable of bearing a strain of 25 tons. The force subsequently applied caused the rods however to break at their connection with the mudshell, and though they were all brought up, the tool remained below. A new operation therefore became necessary for extracting the shell, and first the upper portion of it was considerably widened by the use of a jumper. A drill was then introduced, and after several day's labour a hole, sufficiently large to admit of the conical worm auger being screwed into the shell, was drilled. The entire shell was immediately brought up, bearing ample indications of having been in contact with the plummet, but leaving it still at the bottom of the bore.

On the first of October, 1837, the depth attained* by the tubing was 431 feet, while the depth of the bore varied from 418 to 426 feet, according to the height of the sand. The water stood from ten to twelve feet from the surface, according to the seasons. By the 30th of April, 1838, the bore was 460 feet deep, and by the 18th September following, a total depth of 481 feet was reached. Just prior however to that depth being attained, the progress of the tubing was arrested by large stones requiring the use of the jumper. By its aid the tubing was again set free, but at 481 feet again arrested, and a repetition of the employment of the jumper became necessary. As the tool originally employed proved insufficient to fracture the stones then met with, a larger and heavier one was attached to the rods, and after a few blows, seemed to have effected its purpose; but on attempting to raise it again it was found to be so firmly jammed that every attempt at dislodging it proved fruitless. A great power was simultaneously applied to raising the rods, and forcing down the tubes, but with no other effect than the perceptible elongation of the former. About 150 blows of a ram, weighing 2½ cwt., with a fall of fifteen feet, were then given to the head of the rods, in the hope that the vibration thus communicated to them would tend to loosen the jumper from its hold. The large accumulation of sand over the tool and round the rods rendered it however problematical if the vibrations ever reached the jumper; and if they did, there can be little doubt that the above cause tended most materially to diminish their intensity, as no useful result followed the trial of this experiment. Again, and as a final effort, the tubing was securely held down, and four powerful jack-screws were applied to raise the rods, which after stretching two feet six inches, and thereby affording a gleam of hope that the difficulty was vanquished, unfortunately broke off at one of the connecting joints, 160 feet from the surface, the remaining 320 feet attached to the jumper, being left within the bore.

Under these circumstances the only hope of being able to continue the operations lay in the practicability of unscrewing and raising the rods, and this after much difficulty was at length so far satisfactorily effected by the use of an ingenious instrument designed by Captain John Thomson, that 290 of the 320 feet of the rods were successfully extracted. This instrument consisted of three steel arms rivetted to an iron bell, in the manner shewn in sketch No. III, and subsequently welded to the end of the undermost boring rod. The interior surfaces of the steel arms were cut in grooves so inclined, that on the head of the rod to be extracted being grasped within them, and a rotatory motion communicated to the instrument from above, the teeth cut into the soft iron, and by the hold thus obtained, the unscrewing and raising were effected. The bell acted as a guide, and was made of diameter just sufficient to admit of the instrument being readily worked within the tubing. It became necessary to pass iron pins through all the connecting joints of the rods, otherwise the rotatory motion would have unscrewed them.

On the 16th of February, 1839, the instrument above described was again successfully employed in unscrewing twenty feet more of the fractured rods After this a single rod, only ten feet in length, remained attached to the jumper, and repeated attempts were made to effect its extrication, till at length during one of these, its joint unfortunately broke off, leaving the difficulty greater than ever. The only remedy which presented itself, was to construct a second instrument of which the steel arms would be long enough to lay hold of the shoulder strap in the centre of the rod. This instrument, after several unsuccessful attempts had been made with it to unscrew the broken rod, also gave way, the upper part appearing with one arm attached to it, while the other two arms attached to the bell remained below. By the use of the conical worm auger the broken instrument was occasionally raised as high as thirty feet, but the hold of it could never be retained to any greater height, some obstacle to its further progress upwards invariably meeting it there, and effectually preventing its removal.

From the 10th to the 15th February, 1840, the work was prosecuted night and day without intermission, as a final effort to remove the sand which had accumulated over the broken instrument, rod, &c. and thus to admit of another tool (designed by Sergeant Longhurst, Sappers and Miners) to be used with greater facility. This tool shewn in sketch No. IV. consisted of an iron rod with four strong palls attached to it, and so constructed, that while the tube was passing down the tubing, or within the bell of the broken instrument, they lay close to the rod, but on its passing completely through, they moved on their axes and caught underneath the tubing or bell, so as to give fulcra for the force from above to act upon. In this instance, however, as before, the attempt terminated in disappointment, for though the broken instrument was occasionally raised a few feet, every exertion failed in raising it to the surface.

A long continuance of unceasing exertion on the part of those employed having thus proved insufficient for the removal of these obstacles, the Committee considered it their duty to discontinue, and were on the eve of communicating to Government their unanimous opinion that a further prosecution of the boring operations would only be incurring expense, for which there was no prospect of any adequate return, when it was suggested to them that some good effect might result from the explosion of a charge of powder, contained in a water-tight case, in the immediate vicinity of the broken tool and jumper. The Committee deeming it possible that the concussion thereby caused might loosen the hold of the jumper, or fracture the broken tool, so as to admit of its fragments being raised to the surface, and willing to adopt any expedient which promised them the power of continuing their labours, determined to make the proposed experiment. There was reason to believe that the steel arms of the lifting tool were considerably expanded and in contact on each side with the tubing, it was therefore desirable that the powder should be lodged within the arms, so that they at least might be broken in pieces by the first explosion. With this view a strong tin case, carefully soldered and terminating in a pointed extremity, was prepared for the reception of about 15 lbs of powder, but preparatory to charging it for explosion it was filled with dry sand, firmly plugged up, covered with water-proof composition, and lowered to the bottom of the bore. On raising it again, the original cylindrical case was found to have been compressed by the water, into the shape of an octagon, acute ridges, about ¼ of an inch in height, alternating with the flattened sides (sketch No. V.) The pressure had ruptured the tin at the edge of the top of the case, and the sand was saturated with the water. A double case was then constructed, having interior cross pieces to strengthen it, but a similar result to the preceding followed the lowering of this, and for it also the pressure (upwards of 5,000 lbs.) was found too great. A cylinder of wrought iron was then prepared, and on sending it down the bore it was found so far capable of resisting the pressure of the water as to retain its shape, but the sand was still damped. Since however the water had only partially wetted the sand, it seemed probable that additional care in soldering and in applying the water-proof covering might exclude it altogether, and accordingly it was determined to make the first attempt with this wrought iron case.

The depth of water being about 465 feet, the galvanic battery was of course the only igniting agent which could be employed; and the following are the details of the arrangements adopted. A wooden plug was turned somewhat larger at one extremity than the collar of the cylinder into which it was subsequently to be driven. On opposite sides of this plug, grooves were prepared for the reception of the interior conducting wires. Considerable difficulty was experienced in making the grooves perfectly impervious to water under great pressure, in consequence of the wires being twisted, but ultimately the following means were employed with entire success. The grooves were first filled with fine Europe sealing wax, and the wires being previously made very hot, were forced into and completely imbedded themselves in it. Subsequently a red-hot iron was held near the wax of each groove, till it boiled freely, and a strip of wood was then forced in over the wire so as effectually to close every aperture. The interior extremities of the wires were as usual connected by a short piece of thin platinum, in contact with which a cartridge of dry fine powder was placed. The main conducting wires were one-sixth of an inch in diameter, and their entire length was nearly 1008 feet. As the bore was lined to the bottom with iron tubing, it appeared essential to insulate the conductors as perfectly as possible, and each wire was accordingly first cased in hempen strands, over which a thick coating of pitch and grease was applied, and then the two wires were lashed together by similar strands, and again covered with pitch and tallow. A single rope, about an inch in diameter, was thus formed, and on immersing the whole in water, its action was tested, and a battery of twelve indifferent plates sufficed to effect the ignition of powder.

On the charge being placed in the cylinder, and the platinum wire protected by means of a small tin priming tube, the plug was driven into the collar. Over it, and for the purpose of preventing the water forcing its way through the wood, a tin cap, having two holes for the conducting wires to pass through, was carefully driven down and soldered. In order to prevent this cap establishing a metallic communication between the wires, and thus preventing the passage of the galvanic fluid to the platinum wire, the diameter of the apertures for the wires was made considerably larger than that of the wires themselves, and the top of the plug covered with sealing wax. The application of a red hot iron melted the sealing wax, and on the cap being driven down it rose through the apertures and formed an insulating collar round each wire. These arrangements being complete, and the battery of 24 cells, 14 inches × 14 inches, in action, the main conductors were connected to those of the cylinder, and the insulating covering continued over the junction, when the cylinder was lowered to the bottom of the bore. On its reaching this, the circuit was completed, but no explosion followed, and on examination it was found that from the smallness of the priming tube the platinum wire had come in contact with the metal, by which of course its ignition was prevented. It was also found that though the priming powder was dry, the water had reached the main charge, and completely spoiled it. Further precautions being taken, several attempts were made, but all with the same result, and it became evident that the wrought iron case could not be rendered water-tight. Recourse was then had to casting a cylinder of iron half an inch thick throughout, and on trial this was found to be perfectly capable of resisting the pressure of the water, and preserving the charge dry. The first attempt with this failed from some unascertained cause, and as it was thought possible that some portion of the conductor might have come in contact with the iron tubing, an additional covering of lashings, with pitch and grease, was applied for a second attempt.

This also failed, and unfortunately in raising the cylinder, to endeavour to discover the cause of failure, the lifting rope gave way, and it became necessary to haul on the conductor. This had been done once or twice before, without any bad effects, but on this occasion the junction of the wires at the collar of the cylinder was not sufficiently strong to bear the weight, and the case after being raised for some distance dropped back to the bottom of the bore. All hopes of benefit from this expedient being thus summarily disappointed, it only remains to be stated, that the operations of the Committee were finally closed on the 20th of April, 1840.

Throughout the course of the preceding narrative, all reference to the geological information the labours of the Committee have been instrumental in eliciting, has been avoided, from a desire to render the mechanical details as continuous as possible, but as few such opportunities as the present have ever been given for observing the structure of alluvial DELTAS, a condensed summary of the various points of interest to the geologist is now appended.

After penetrating through the surface soil to a depth of about ten feet, a stratum of stiff blue clay, fifteen feet in thickness, was met with. Underlaying this was a light coloured sandy clay, which became gradually darker in colour from the admixture of vegetable matter, till it passed into a bed of peat, at a distance of about eighty feet from the surface. Beds of clay and variegated sand, intermixed with kunkur, mica, and small pebbles. alternated to a depth of 120 feet, when the sand became loose, and almost semifluid in its texture. At 152 feet the quicksand became darker in colour and coarser in grain, intermixed with red water-worn nodules of hydrated oxide of iron, resembling to a certain extent the laterite of South India. At 159 feet a stiff clay with yellow veins occurred, altering at 163 feet remarkably in colour and substance, and becoming dark, friable, and apparently containing much vegetable and ferruginous matter. A fine sand succeeded at 170 feet, and this gradually became coarser and mixed with fragments of quartz and felspar to a depth of 180 feet. At 196 feet, clay impregnated with iron was passed through, and at 221 feet, sand recurred, containing fragments of limestone with nodules of kunkur and pieces of quartz and felspar; the same stratum continued to 340 feet, and at 350 feet a fossil bone, conjectured to be the humerus of a dog, was extracted. At 360 feet a piece of supposed tortoise shell was found, and subsequently several pieces of the same substance were obtained. At 372 feet another fossil bone was discovered, but it could not be identified, from its being torn and broken by the borer. At 392 feet a few pieces of fine coal, such as are found in the beds of mountain streams, with some fragments of decayed wood, were picked out of the sand, and at 400 feet a piece of limestone was brought up. From 400 to 481 feet fine sand, like that of a sea-shore intermixed largely with shingle, composed of fragments, of primary rocks, quartz, felspar, mica, slate, limestone, prevailed, and in this stratum the bore has been terminated.

In conclusion, the Committee have much pleasure in acknowledging the valuable aid derived by them on many occasions of difficulty from the advice and ingenuity of Captain J. Thomson of Engineers; and they desire also to express their entire approval of the zeal and intelligence uniformly displayed by Sergeant Thomas Longhurst of Sappers and Miners, during the whole time he was in charge of the details of the boring operations.

D. McLeod *Col. and Presdt.*
A. Irvine, *Major.*
F. P. Strong.
W. R. Fitzgerald.

Fort William,
Chief Engineer's Office,
May 15*th,* 1840.

P.S.—Since the above Report has been signed by the Members, I have recollected a most unintentional omission, for which I am entirely responsible, and which I am therefore desirous of supplying.

It is due to Lieutenant Richard Baird Smith of Engineers, to state that he has not only taken a great interest in all our proceedings, but has rendered great assistance in carrying them on during the most difficult period of the operations, since he has resided in Fort William; moreover, the employment of the Galvanic Battery to blow up the lower portion of the tubing, &c. was suggested to the Committee by him, and the apparatus applied in that process, as above described, was entirely on his design. I may add, that his intelligence and knowledge of the subject, enabled him to give essential aid in arranging the materials for the above Report.

D. McLeod, *Colonel,*
Chief Engineer.

Report on a line of Levels taken by order of the Right Honorable the Governor General, between the Jumna and Sutlij rivers. By Lieut. W. E. Baker, *Superintendent of Canals West of the Jumna.*

Preliminary Observations.

The subject of inquiry proposed, having been to ascertain the practicability of establishing a water communication for the passage of boats between the Jumna and the Sutlij; I considered that the best preliminary measure would be to take a cross section, fixing at certain points the relative levels of those rivers and of the intermediate hill torrents, and the greatest height attained by the intervening ridges.

Selection of a line.

The line (viz., one between Kurnaul and Loodiana) which I selected for this section, was recommended by the following considerations:—

1st. It connects the highest points of both rivers to which boats of considerable burthen habitually resort.

2nd. It lies in a South-east and North-west direction, parallel to that of the Sub-Himalayas, and consequently perpendicular to the general lines of drainage.

3rd. It crosses each of the considerable mountain torrents before its junction with the Cuggur; and, lastly, its length was well suited to the time (about three weeks) to which, having no Assistant, I was obliged to limit my absence from the canals under my charge.

Irregularities and inequalities accounted for.

Having no accurate map of the country, I had merely a general idea of the direction from Kurnaul in which I should strike Loodiana, which will account for the deviations from a straight course observable in the accompanying map. My object being to note the general features of the country, I took no pains to avoid merely local inequalities, and my Section therefore exhibits much greater irregularities of surface than it need have done, had I had leisure previously to examine the ground ahead of my levelling instrument. The hollow in the neighbourhood of Puttiala, for instance, might have been in a great measure avoided by a more northerly course.

Nature of the information required.

The information thus obtained is necessarily incomplete, and though it has in my opinion proved the practicability of the contemplated measure, it has not furnished data for a detailed project, and still less for an estimate of the probable

Why now submitted.

cost of the undertaking; such as it is, however, I have judged expedient to communicate it at once, both as a report of progress, and to enable Government to decide whether or not it be advisable to prosecute the inquiry further.

Cost of the survey.

The cost of the present survey amounts, as per contingent bill, submitted to the Military Board, to Company's rupees 74 : 9 : 0.

Reference to the Map and Section.

In the accompanying Skeleton map and section, I have endeavoured to condense most of the information obtained, and to show at one glance the result of my inquiry. In this it will be seen, that from the level of the Jumna to the town of Pahul, near which the greatest elevation (67 feet, 11 inches, 25) is attained, there is a general rise, partially interrupted by the beds of intervening rivers, which may be thus particularized :—

The Chittung river.

The Chittung — an inconsiderable nulla, has no defined valley. Of its surplus waters, spreading out during the rainy season, right and left over the country, but little returns into its contracted channel; and of late years, no considerable flood has reached even as far as Dhatrut, in the Jheend territory, from whence to Buhadera, in the Bikuneer State, the ancient bed of this river is occupied by the Canal of Feroze Shah.

The Valley of the Sursootee, the Markunda, and the Cuggur rivers.

Their peculiar character.

Their use for irrigation.

From the ridge dividing the Chittung and the Sursootee, there is a considerable descent to the bed of the latter river, which may almost be said to have already joined the Markunda and the Cuggur at the point where I crossed them. From near Thanesur to Konaheree, the whole tract of country (with the exception of village sites) is liable to inundation from the Sub-Himalayan torrents, diffused over its surface by means of a net-work of natural and artificial water-courses, of which some are supplied from more than one of the rivers above named; others, again, flow from one river into another, and during great floods (as I was given to understand) all three are frequently united. The inhabitants avail themselves largely of the inundation for rice cultivation, though during the present season at least, little advantage appeared to have been taken of the facilities afforded for irrigating Rubbee crops, which, where they existed, were generally watered from Wells. I had not leisure to ascertain, by personal examination, whether the first diffusion of these rivers (which I have myself seen nearer the hills in single and separate streams) were caused by natural or artificial means, but it is probably attributable to both. The slope and evenness of the country, are calculated to favor even the rudest attempts to divert the streams from their original beds, and the same circumstances would also render it easy, were it desirable, to confine them again to one or two principal channels. What I have designated as the "main branches" of the Markunda and Cuggur, are distinguished from the others, not so much by their superior size, as by the presence of a small thread of running water.

Their diffusion accounted for.

The valley of the Sursootee, Markunda, and Cuggur, such as I have described it, though extending to a width of twenty-nine miles, would present no insurmountable obstacle to the formation of a navigable Canal across it, though the expense attendant on the provision of the necessary embankments and aqueducts, would be considerable. And on this account, as well as for other reasons, to be noted hereafter, a more advantageous line for the Canal would probably be found further to the south-west, below the town of Sumana.

Their importance as an obstacle to the Canal.

The river which flows past Puttiala, has a different character from the preceding. Its channel at the point where I crossed it, is so deep, that I could not have supposed its waters would ever be capable of spreading out over the country, had not the construction of an embankment between the stream and the city (said to be for the protection of the walls), proved that it is sometimes liable to overtop its banks. At this point, in consequence of its deep narrow section, it would be easily crossed by a short aqueduct.

The Puttiala, or Kosilla river.

Immediately beyond the city of Puttiala, I encountered several ridges of sand, which would most likely be avoidable on another line, but if not, it would merely be necessary to puddle the Canal bed throughout their extent, to prevent heavy loss of water by absorption.

Sand ridges.

The Sirhind Nulla, which I crossed about sixteen miles beyond Puttiala, flows in one or more channels through a valley 500 or 600 yards in width, having but a

The Sirhind Nulla.

Its character and uses for irrigation.

slight depression below the adjoining country. Its flood waters could, with very little labour and skill, be let out by side cuts to inundate the lands lying on its east bank, and I therefore conclude that such a practice is adopted, as the natives of this province are fully aware of the value of that peculiar system of irrigation, which consists in flooding the land once a year.

Sand ridges.

From the West bank of the Sirhind Nulla to a few miles beyond Pahul, the land is generally level, but intersected by a few sand hills, one of which, between the villages of Bishnpoor and Kuddoo, may be considered the crest of the ridge, dividing the Jumna from the Sutlij.

Descent to the Sutlij.

From Doorai-ki-Serai westward, the descent is rapid, and the fall appears to be broken in a remarkable manner into steps, ending in an abrupt cliff of 30 feet, on the western continuation of which stands the fort and town of Loodiana. At some former period this cliff was evidently the eastern boundary of the Sutlij, and even yet, as I am given to understand, the waters of that river when swelled by the monsoon floods, frequently reach its base.

Valley of the Sutlij.

The remaining tract of seven and a quarter miles, intersected by branches of the Sutlij, is proved by its loose sandy soil, as well as by its topographical position, to be an alluvial deposit of the river; and were the canal to join the Sutlij at this point, it would be more advisable to deepen the Nulla which flows under the Fort, than to make a new excavation through such unfavorable soil.

Capabilities for navigation near Loodiana.

Shifting sands.

As my commission did not include an examination of the Sutlij, I may perhaps not be expected to offer an opinion on its navigable capabilities; but I may be permitted to remark, *en passant*, that the stream near Loodiana appears to have two characteristics decidedly unfavorable to navigation; viz. a sandy bed, and a considerable fall; a combination of circumstances which cannot fail to produce shifting and uncertain shoals.

Depth of wells throughout the line.

With a view of ascertaining the level of springs along the line of my section, I measured the depth of 156 wells between Kurnaul and Loodiana, and the average result is shewn in the profile by blue dotted lines. In this I had two objects; first to ascertain whether, as some suppose, measurements of the level of springs would give data for an approximate calculation of the

No sure index of superficial inequalities.

Effect on the amount of absorption.

profile of a country; and, secondly, to obtain one element for calculating the amount of absorption in a standing canal, for which it would be necessary to provide a daily compensation. In the former respect my present observations, as well as those made with the same view in other localities, shew that the level of springs is too much affected by the vicinity of streams, the degree of permeability of soils, and other local circumstances, to admit of any accurate conclusion being drawn from them, regarding the profile of the surface. But with reference to the second object of my inquiry, it is satisfactory to find that the wells measured, have generally so little depth, as the waste by absorption in the contemplated canal, will be relatively much less. In illustration of this point I may mention, that in the Paneeput district, where before the introduction of the Delhi canal the springs were from thirty to forty feet below the surface, they are now from fifteen to thirty feet; whereas in Hurriana the springs have been raised since Feroze's canal was opened, in some instances, as much as sixty feet.

Practicability of the measure illustrated by a possible Section.

Water for lockage and wastage, how obtained.

The possible Section not recommended as an advisable one.

On the accompanying profile I have sketched out what I consider to be a possible section of a still water canal, from the highest level of which, between Pahul and Doorai-ki-Serai, the westward descent of sixty-three feet to the level of the Sutlij, is made by means of seven locks; while to the eastward a descent of thirty and a half feet to the valley of the Markunda and Sursootee, is effected in five locks, after which a partial rise of six and a half feet is necessary to cross the ridge separating these rivers from the Chittung, followed by a descent of thirty-eight feet, by four locks to the level of the Jumna. Water sufficient for the westward lockage, as well as to compensate for waste by absorption and evaporation, could be supplied at the highest level by a cut taken from the Sutlij, at the point where it debouches from the lower hills, and conducted along the crest of the ridge; and on the eastern extremity of the canal, we might obtain water for the same purposes by a water-course from the Delhi canal above Indree. In sketching out this project, I would be clearly understood not to recommend it as an advisable one. The number of masonry aqueducts required here, the necessity for which

Its object.

would be obviated by a more southerly course, would alone point out the latter as preferable; but if it can be shewn that the scheme is feasible on a line taken at random, the probable existence of one decidedly favorable, will readily be admitted.

Utility of the measure considered with reference to the future trade of the Upper Provinces.

Whether the construction of such a work would be eventually as beneficial to the country as it appears practicable as an engineering operation, the Government are doubtless in possession of better information to guide their judgment, than any which I could afford them. At the present time it might facilitate the transport of military stores required for warlike operations westward of the Sutlij, but this inducement will fail whenever Magazines may be formed on the banks of the Indus, and their contents transported by water from Bombay. As regards the public interest, however, the case is different, attention being now so universally attracted towards the shorter communications with Europe, whether by the Mesopotamian route or that of the Red Sea, it cannot be supposed that the use of these means will long be restricted to the conveyance of mails; the more valuable description of merchandise will soon follow, and shipments for Europe will be made from some port to be established near the mouths of the Indus. The North-western provinces of India will abandon the present circuitous route by Calcutta, and send their exports by the more direct one of the Indus, and the deserts bordering the east banks of that river, which will then be the only obstruction, may be turned by the contemplated canal.

Its obvious advantages.

Though fully aware of the more than apathy which exists in this country towards any thing involving a change of established usage, and but little acquainted with the nature and amount of produce exchanged between the several provinces of India, yet I can scarce suppose that the community would not avail themselves of the facilities for the circulation of trade, which would be afforded by a communication between two such rivers as the Ganges and the Indus, embracing such an extent of fertile country, and entering the sea at such distant points.

A plausible objection answered.

If it be urged that the construction of a canal would be premature before the full establishment of the trade which is to give it employment, I would reply, that the formation, or at least the certain prospect of a canal, would be one great inducement to the establishment of trade. No merchant, for instance, would bring European stores to Ferozepore for supplying the stations of Kurnaul, Meerut, and Dehli, with a prospect of 200 or 300 miles of land carriage, rendered peculiarly difficult by the nature of the country, and the scarcity of all means of transport.

A new line recommended for future examination.

Should Government decide on the further prosecution of this inquiry, I beg to recommend for examination the lines tinted blue in the annexed sketch map; that marked *a. b. c.* is calculated to cross the Cuggur below the junction of its tributaries, and to avoid a spur of high land, which I am led to believe, crosses the direct road from Kurnaul to Ferozepore. The line *d. b.* would be that of the supply channel from the Sutlij.

Field book and orginal protractions available.

In conclusion, I beg to state that the field book and original protractions of my survey and levels, on a scale of one mile to an inch, are at the disposal of Government for any purpose.

Memoir on the Hodésum (improperly called *Kolehan*) —*By Lieut.* TICKELL.

Colonies of people speaking the same, or nearly the same dialect as the Hos, or Lurka-koles of Singbhoom, but of whose customs and history we are ignorant, may be traced from the jungles of Ramgurh (near Hazareebaugh) to the south and southward along Moherbunj, Keonjur, Gangpoor, down to the confines of Buna Nagpoor, where they are distinguished from the Gōnds (in Gōndwana) by the name of " Kirkees." Those colonies described to me by Gōnds are insulated, semi-barbarous, and confined to the wildest parts of that country. The country lying north and north-east of Gōndwana, and west of Gangpoor, and south of Surgoojia, are in all probability inhabited by the main stock, from whence these small settlements have wandered. These regions have never been explored, and are wrapped in the greatest obscurity. We only know that they are traversed by large streams. The Koil, the Hutsoo, the east and west Shunk, and the Brahminee, which flow into the sea, north-east of Kuttuck, or join the Mohanuddee. The Shunk is said to be navigable above Gangpoor for tolerably large boats, and may therefore be presumed to become a considerable river in its passage to the southward; watered by such fine streams, it is difficult to imagine the whole of those regions, to be mere wastes of jungle, which would not repay the trouble of exploring them. But they must ever remain unknown, so long as the inhabitants retain their primitive habits, and aversion to visiting other countries, and until more enterprising people than the timid Hindoos, settle in their vicinity.

These remarks, vague as they are, may serve to define the limits of this wild and aboriginal race; for beyond the precincts thus roughly sketched, I am unaware of their language extending. It must be remembered that the inhabitants of Chota Nagpoor, although indiscriminately called Koles, are a totally distinct race, having different languages, manners, and origin. These latter, properly named "Oraóus," were the first known inhabitants of Roidâs (Rotâs) and parts of Reewa. Their sudden transmigration across the Soane, and which is ascribed by them to inroads of Hindoos from the vicinity of the Ganges, may be attributed to the expulsion of the latter by their Moohomedan conquerors, but at what precise epoch, it is difficult to determine.

It is these Oraóus who first give us accounts of a people called Moondas, whom they found in possession of Chootia* Nagpoor at the time of their flight into it. They state them to have been a wild people, living chiefly by hunting, and who offered no opposition to the Oraóus settling in the fine open tracts to the northward of Sonepoor, and cultivating lands of which they themselves scarcely knew the value. Being a peaceable, industrious race, the Oraóus gave no umbrage to their hosts, and very shortly after, the entire residue of the immigrants, who had for a time taken refuge in the uninviting jungles of Palamoo and Burhwé, passed over into Chota Nagpoor, where they remained in great harmony together, until the Hindoos came spreading further in, and attracted by the beauty and fertility of the country, by degrees made themselves masters of the soil. A Bramin from Benares, imposed upon the credulous Oraóus, by trumping up a story about a child, which had been discovered on the banks of a tank at the town of Pittooreea, guarded and shaded from the sun by a Covra, or Nâg, and which he presented to them as their king. This is the present reputed origin of the "Nagbunsees," who to this day are the Rajas of the country; the Raj Gadee, or Paíetukht, was first at Chootia, a town about ten milse south of Pittooreea, from whence the name of the country, "Chootia Nagpoor." What it was called by the Moondas before this event, is not known.

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* Misnamed "Chota."

As the Hindoos spread and prevailed, the effect of their tyranny and extortions was to reduce the Oraóus into complete slavery, and drive the Moondas into open revolt. After a long struggle, the latter were compelled to confine themselves to the jungles of Sonepoor to the south, and the wooded slip of land which to the east raises Chota Nagpoor Proper above the rest of Central India. Wandering south-eastward, many settled themselves in the wild hilly tracts, now known as Kœhang, and in the immense jungles and mountains to the south and west of the present village of Porahaut. Numbers passed over into the low country, east of Nagpoor, now comprised in the zemindarees of Rahé Boondoo and Tamar, subservient to Chota Nagpoor, where mixing with the lowest classes of Bhoornijes and Bhooians, (supposed aborigines of Bengal) they merged into a mongrel race, known as "Tamarias;" and a great proportion traversing the hills and forests of Kœhang, passed out eastward, into the open tract now called Singbhoom and the Kolehan.

The last are the subjects of the present memoir.

It appears that the Moondas, or as they now call themselves, the Hos, found Singbhoom on their arrival to be peopled by Bhooians, an inoffensive, simple race, but rich in cattle, and industrious cultivators, who first allowed them to form settlements in the neighbouring woods, and afterwards permitted them to reside in the central open tracts. Here they remained together for some time, when the country appears to have passed into the hands of "Surawuks," a race of Bengalee Bramins, now almost extinct, but then numerous and opulent, whose original country is said to be Sikrbhoom and Pachete. Their arrival produced a repetition of the scenes which had forced the Moondas, or Hos, from Chota Nagpoor. But in the latter instance, the oppressions of the Surawuks ended in their total expulsion from the

Kolehan—in what direction is wholly unknown, though it may be conjectured they retraced their steps, for the name of Surawuk, is now unknown except in Tamar and Pachete, and then only used by the jungle people occasionally in speaking of Bengalees.

The Kolehan continued after this much in its pristine state, and only known to others by its lying in the route of hosts of pilgrims from Patna and Benares, &c. to Juggernath. The lands, broad and fair, excited the cupidity of many of these travellers, but their dread of the Hos deterred all thoughts of settling, until a party bolder than the rest, journeying from Marwar, took up their residence as guests at the house of a Bhooian Mahapattor, or Zemindar, where they remained on various pretexts, astonished the Bhooians with a display of their riches, superior knowledge, and by descriptions of their country; and ended by reproving them for living on terms of equality with a people who were Mlechis, or unbelievers, and as fugitives from another country, should be considered as subservient to them. The Bhooians desirous of having their own Raja, and emulating their councillors, entered into a league with the Marwarees, who procured a number of their countrymen to assist in establishing the supremacy of the Bhooians. In this they were totally unsuccessful, and the result of a long struggle, the details of which are handed down disguised with much fable in the traditions of the Ooria Bramins of the country, ended with the total discomfiture of the Bhooians, and the coalition of the Marwarees with the Hos. The former established themselves in Porahaut and the rich open plains to the northward, now called Singbhoom; the Hos withdrawing from this part occupied the remaining tract of open land, whose limits, described hereafter, constitute the Hodésum, or Kolehan of the Hindoos.

Up to this epoch no dates can be obtained, as the narrators of the above events, Oraóus and Hos, keep no account whatever of time. But from the introduction of the Marwaree Singbhunsees, and other Rajpoots who came to settle with them, a regular chronological history has been preserved in the Madela, or records of the Porahaut family; unfortunately I am now unable to apply to these for any information on these points.

It appears that these settlers electing a chief, whom they styled 'Raja,' and took up their abode for five or six generations at Porahaut, after which a general division was made of the rest of the country the Bhooians had retired to, among the Hissadars or brethren of the Raja; the eldest brother took Anundpoor (or Sumijgurh); the second, Seryekela; and the youngest, Kera. The Raja also gave as pykallee, or service tenures to some of his subordinates, the Talooks of Bundgaon, Khursawa, Koryekela, and Chynpoor; of these Khursawa has become in a manner hereditary and independent.

In process of time the brothers managed to get into quarrels with neighbouring Zemindars; the Gangpoor walla (of Keonjur) and the Baboo of Anundpoor recriminated each other, about mutual depredations committed (by their orders) in their dominions, by the Koles; the Porahaut Raja's pykes harried Sonepoor; the Kera Baboo plundered Tamar and Chota Nagpoor; and the Koonwr of Seryekela and Raja of Mohurbunj found a bone of contention in the little but fertile tuppah of Koochoong, before alluded to.

In these contentions the services of the Hos were brought into requisition; promises of booty lured them into becoming stedfast allies of those chiefs who had won them over, and thus incited, they commenced a series of depredations on the surrounding country, which soon brought them into note. In return for the plunder which they acquired, they were induced to pay rent in the shape of occasional salamees, in different taxes, or "Russoomat," at periods of Hindoo festivals, &c. and the Kolehan was divided into Peers or Pergunnahs, twenty-four in number; of these the Moherbúnj Raja through his Dewan at Baumenghattee secured four, viz. Aulapeer, Burburriapeer, Toëpeer, and Lalgurh, placing a Zemindar or Mahapattor in the latter. The Singbhoom Raja, together with the younger branches of his house, allied themselves with the remainder, and this order of things continued until 1831-32, when the Mahapattor of Lalgurh, disgusted with the exactions of the Moherbunj Raja, broke out into open rebellion, which led to a series of such contentions and outrages (especially as the Raja's emissaries artfully induced the ignorant Koles of the Mahapattor to plunder our territories of the Jungle Mehals, and incommode our communications to the westward, by cutting of the dâks) that Government was at length obliged to interfere, and in 1836-37 effectual measures were taken to prevent disturbances of the kind, by taking the Hos under our immediate control, and withdrawing them from all allegiance to the Rajas of Moherbunj and Singbhoom.

Singbhoom, including the Kolehan, lies between 21° 30′ and 23° north latitude, and 85° and 86° east longitude; it is bounded to the north by Chota Nagpoor and Patkoom; to the east by the Jungle Mehals and Baumunghatte; to the south by petty states, or tuppahs, subservient to Moherbunj, and by Keonjur; and to the east by Gangpoor and Chota Nagpoor. These limits comprise a fine open tract of country, in most parts exceedingly productive, in others stony and barren, and separated from the circumjacent countries, above enumerated, by rocky hills and jungles. Singbhoom Proper consists of an extent of fine open arable land, to the north of the Kolehan, above 45 miles east and west, and about 18 in breadth, comprising the talooks of Khursawa, Kera, and Seryekela, also a portion of similar land, about 20 miles square, to the north-east, called Koochoong, attached to Seryekela, and along the west of the Kolehan, an imperfectly defined extent of mountains and jungles, including Porahaut and Anundpoor.

The Kolehan as now constituted, comprehends a tract of open undulating country, averaging from sixty miles in length north and south, from thirty-five to sixty in breadth. It is divided into two departments by a step about 500 feet high, running east and west across it. The southern part is rich in soil, and beautiful in appearance; but an absence of inhabitants, and proper culture, gives it an air of desolation. This happily is becoming fast remedied by the return of large families of Bhooians, former inhabitants, who had been expelled by the Hos. The lower country north of the step is exceedingly populous, but in many parts stoney and barren. The westerly Peers are situated among hills and vast jungles, containing a few fertile vallies; and Sarnda in the far south, is one mass of mountains, clothed in forests, where the miserable inhabitants, few and solitary, can scarce struggle for mastery with the tiger.

The Peers are twenty-six in number, Anjoodhia, Assuntullia, Anla, Burkela, Burburria or Birwarpeer, Burpeer or Jyntpeeree, Cherye, Chynpoor, Goomwa, Govindpoor, Gopinathpoor, Jamda, Kaïnawa, Kooïlda, Kotegurh, Lota, Natooa, Lalgurh, Purliong, Rajabapa, Oonchdee, Rengra, Rela, Sath Buntria, Toë, and Sarnda.

I unfortunately neglected taking any census of the people, while assessing them, and when I had an easy opportunity of so doing. But the uniformity and simplicity of their mode of living, enables a rough estimate to be formed of their numbers, from the amount of the annual rack rent, which by way of Malgoozaree, has been levied on them, and the calculation I should think would be found on closer inquiry to be pretty near the truth.

The amount of Malgoozaree for 1838-39 was in round numbers

Co's. Rs. 6,500 at 0/8 per plough,	=13,000 ploughs or men	
of these at least $\frac{7}{8}$ths are married,	=11,375 women,	
Average of 3 children to each family,	=33,825 children,	
Aged people, mendicants, orphans, &c. $\frac{1}{6}$th.	= 2,166	
	———	60,366
Gwallas, Taunties, Lohars, & other castes, $\frac{1}{6}$th	=2,166	
Wives of these $\frac{3}{4}$ths,	1,624	
Children 3 to each family,	4,872	
		8,662
Ploughs concealed at assessment about $\frac{1}{8}$th,		1,625
Total population,		=70,653

The whole of this country is traversed by numerous streams of great beauty, but useless as water carriage, being almost dry in the hot weather, and rapid torrents in the rains. The *Sunjye* separating the Kolehan from Singbhoom, rises to the north-west of Porahaut, and enters the Kurkye, near the junction of that river with the Soobum-rekha; the Roro, twelve miles south of the former, a narrow, but deep and swift stream, and the Eeleegarra and Toorul still further south, take a like course above the step; the Dés Nye runs westward, and falls into the Kolekaro, near its confluence with the Koïl; and near the southern limits of the Kolehan, the different streams take a south and west direction, falling into the Bhundun and Byturnee, which last, running through vast and lonely forests, separates the Kolehan from Jushpoor and Rorwan, in Moherbunj, and Kalkapershaud in Keonjur. There are two water-falls on the borders of the Kolehan, which I have never visited, but which, by the description of the natives, must be well worth seeing. The Bunnye, running between Sonepoor and Singbhoom, is said to roll its waters into a profound cave, from which spot it pursues its course underground, and is supposed to join the Kole Káro. The fall is called Paraá-ghag, and is a tiruth, but so remote from habitation, and buried in such deep woods, as to be seldom visited, except by the Sonepoor Koles, and Bhooians of Porahaut and Bundgaon. On the confines of Baumunghattee also, is a singular cascade, described to me as a single thread of water pouring down a walllike precipice of 2 or 300 feet in height. It is called by the Baumunghattee Oorias, Muchkandnee Jhurna; and by the Koles, Hakoo-yâmdah, meaning in either language, " The fall of the weeping fish," from some whimsical story of the fish complaining of the impossibility of scaling the cataract, to emerge from the dreary abyss, through which the stream winds below. The peculiar distribution of the hills in this country, running in parallel ranges, precludes the formation of lakes, which are unknown.

These ranges are not of very great height, the loftiest, which are in Saruda, not appearing above 1000 feet above the plain. They are however intersected in parts by profound vallies, which give the hills, from that side, an appearance of great magnitude. They are chiefly quartz, in all stages of decomposition, permeated by limestone rocks; smaller detached ranges issuing at right angles to these, are commonly of micacious slate. From Chyebassa, proceeding easterly into Koochoong, are low ridges perfectly parallel, about half a mile to a mile apart, gradually increasing in height till the series is closed by the Choivria hills in Koochoong. They are composed of loose rocks, resembling (if they are not) clink stone; but the larger ridges are of coarse granite. The northern part of the Kolehan consists in a great measure of sterile plains, scattered with quartz boulders, stones, and pebbles, some crystalized. The beds of the nullahs are a shingle composed of jasper (of all hues) green stone, quartz pebbles, and flint. The bed of the Byturnee is lined with flattened pebbles and lumps of jasper, of bright yellow, red, purple, and black, disposed in parallel streaks, or ribbands, as if artificially inlaid. The corundum is found in great quantities at Juggernathpoor on the upper step of the Kolehan, and several nullahs run through beds of argillaceous earth, from the brightest scarlet to pure white, which are highly in request among the natives. The whole of these streams wash down more or less gold, but the Koles know not how to collect it. In Singbhoom a tolerable quantity is gathered by Hindoos, but of a third or fourth rate quality, alsô excellent iron; of coal I never found any traces.

The open parts of the Kolehan are here and there scattered with a scrub jungle, composed chiefly of the Polass and Assun, on which latter the tusser silk worms are bred. The southern parts, where not cultivated, are covered by extensive plains of grass, interspersed with bushes; entirely along the west boundary, are forests of saul trees, small and meagre on the hills, but reaching in the low rich vallies to a size perfectly prodigious. In Anundpoor, towards Gangpoor, are tracts covered entirely with the wild plantain, and many of the hills are clothed densely with bamboos. In marshy spots a strong serviceable species of cane or ratan is found. The wild mangoe tree is also very common in these forests, yielding a fruit far preferable to the common kind found in the " topes" throughout India; it is small, round, and full of juice, as sweet as honey. The date and palm trees are not cultivated by the Koles, but are to be found near Hindoo villages in Singbhoom; cheretta, wild indigo, and arrowroot are very common in the jungles. But to enumerate all the beautiful flowers which enrich these green retreats—the fruits and roots, to every one of which the natives attach some specific virtue or harm; the inexhaustible variety of plants, shrubs and fungi, ferns, creepers, &c. which clothe in all varieties of fantastic imagery the shady dells; or the cool banks of foliage-canopied streams,—would be a task far exceeding my powers, or the limits of this memoir.

The animals found in the Kolehan are the same as in other parts of central India, but not nearly so abundant as in better watered jungles, besides which the Koles and Oorias are inveterate hunters, and their attacks on game of all kinds are pursued on an exterminating scale (a description of their hunts is hereafter given). The elephant, which is numerous in parts of the Jungle Mehals, comparatively close to Medneepoor, is, strange to say, unknown among the remote and wild regions of west Singbhoom; the gowér is common in this latter region—two species are described by the natives, a red and a black kind; the urna, and smaller wild buffalo are very numerous about Anundpoor; great varieties of deer haunt the hills, the saumúr (C. rusa), neelgye (Dalmalis picta) spotted deer (C. axis) barking deer, or Muntjac (C. muntjac), chikerac or four horned deer (C. chicquera), all these species, though so shy when sought after as to be seldom met with, must be tolerably numerous, from the depredations they commit on the fields of gram, boot, moong, oorid, &c. which are planted near the jungles. The memina, a species of mouse deer, is also found among rocks, and underwood. The antelope is confined to the wide open plains of Chynpoor in Singbhoom, and very limited in number. Tigers and leopards abound. Bears infest almost every clump of rocks throughout the plain; they are all of the long-lipped species (Ursus labiatus). Hyænas inhabit similar localities, but are rare. There are no *wolves*, but there appear to be two distinct species of the jackal (C. aureas), one of which is much larger, stouter, and ruddier than what I remember of the jackal of Bengal. The cry also is different, and is a wailing sound not much unlike, though infinitely louder, than the mewing of a cat. At all events the Koles distinguish the two animals, calling the large kind (from its cry) *Tow Koola*, and the common jackal "*Kurmcha*." The little Bengal fox or Corsac (Cynalopex insectivorus) is very numerous, yapping all the clear nights long, during the cold season. The Indian badger or Ratel (Ratelus melivorus) is found in the woods, but rarely. Porcupines (Hystrix) are numerous, but being nocturnal, are seldom seen. The short-tailed marus (M. crassicandata) is met with among rocks, but is one of the rarest animals known. There are three kinds of squirrels, the common palm squirrel (Sciurus striatus), the great red squirrel (Sciurus macronnus), and a large grey flying squirrel, peculiar, I believe, to the Kolehan and the Jungle Mehals. This last is exceedingly rare, as it lives on lofty trees in profound forests, and only moves forth at night. The wild dog (Canis primævus), *Koohia* and *Sona-kookoor* of the Oorias, and *Tannee* of the Koles, roams through the jungles in packs, occasionally visiting the flocks and herds on the plains. Their ferocity, speed, and cunning, have gained them a superstitious veneration among the Koles, and dread of their retaliating on their cattle, deters the villagers from killing them. Of these also there are said to be two kinds, a large dog, in shape and colour like a Scotch greyhound or lurcher, which hunts by sight, and a smaller, red, bushy tailed dog, which follows the other in packs of five to twenty, is less speedy and hunts by scent. The hare is larger than that of Bengal, inhabits gravelly ravines in scrub jungle, and never takes to grass. Of monkeys there are only the two common species, the Lungoor and Mákor or Bunder (*Sara* and *Gye* of the Koles); the former live among rocks, the latter in dense thickets. Wild hogs are very numerous in some parts, but so wary as to be seldom killed. The rhinoceros is not known.

Birds of all kinds are scarce and wild, especially those fit for food, on account of the keenness with which the Koles pursue, trap, hawk, and shoot them. The double-spurred partridge is found among rocks, but is one of the most difficult birds to shoot, as it seldom takes wing, but creeps into caves and fissures. The deep moist woods afford immense varieties to the ornithologist, an enumeration of which would be useless.

Being a dry and stony country, the Kolehan is peculiarly prolific in snakes of all varieties; the covra is not so common as another species, the *Siarbinja* of the Oorias, and *Pago jarras* of the Hos (Cophias Russelii), which is supposed to be equally deadly, and far more vindictive; it is a subgenus of rattle-snake (without the rattle). A large and beautiful snake, coloured with black and yellow rings, the *Sakom bing* (Pseudoboa fasciata) is met with in ploughed fields; a long thin green whip-snake, infests the rank grass jungles at the bottoms of hills; the hartoo, a slender, agile species, coloured like a ribbon with yellow, and coppery purple, infests trees. All these are venomous. The Python or Ujgur, (*Toonil bing*) is found in every jungle; it attains to dimensions which I have heard described, but which would sound too marvellous to be recorded without better proofs. Throughout Singbhoom, Chota Nagpoor, and the surrounding countries, a belief is current of a monstrous species of snake, the "*Garra bing,*" infesting rivers swollen by torrents, which destroys both men and cattle, should they venture in. I mention it, as the opinion is so general, but it is probable that the sudden and mysterious deaths which occur in these mountain torrents, are occasioned by what seamen call the "under tow" and "back water," caused by the violent passage of water over rocks and deep holes. The body of a person thus carried away is never seen again, at least in the neighbourhood, and this total disappearance naturally strengthens the idea of his having been swallowed up by some huge animal.

An entomologist would find an exhaustless field of research and discovery in the jungles of this country. The decayed saul trees are tenanted by magnificent species of Prionus and Cerambyx; the rocks contain endless beautiful varieties of Coleoptera; the deep woods, every where during the rainy season brilliant with odoriferous flowers, are enlivened by Lepidoptera of the gaudiest colors, and numberless varieties of grotesque shapes in the Mantides, Phyllia, and Grilli, infest every thicket; while tribes of ants, bees, and wasps, attract attention by the beauty and ingenuity of their habitations and nests in the forests. Of the former, one of the commonest species is remarkable for traversing the jungles, and marching along the paths in procession two or three abreast, and of prodigious extent. Scorpions and centipedes are fearfully common; of the former, a species infests caves and fissures in rocks, and attains such an enormous size, that had I not heard the animal described by several people (of different classes), and had reason to be satisfied of the general truth of their assertions, I should have looked upon the whole as a chimæra. In dry, konkerous soils, the white ants are a scourge. They appear, in woods, to be a kind of vegetable scavenger, reducing to powder the logs which lie on the ground in a short space of time.

Fish are abundant in every largish stream, retiring in the dry season to the deep pools, which are left when the main channel has run dry; but the Koles, by poisoning the water, destroy inordinate quantities. The mahseer, and the little fly-taking Cyprinus, miscalled 'trout' in Upper India, are not found in these lower latitudes. Doubtless these running jungle streams produce many undiscovered varieties of fish, but unfortunately, to this branch of natural history I turned no attention during my stay in the country.

The climate of the Kolehan has been found to be on the whole healthy, although the station of Chyebassa, which was unfortunately selected hurriedly, and without sufficient examination and comparison with surrounding spots, is not a favourable sample, situated on a barren, gravelly plain, interspersed with brushwood, and near piles of bare rocks. The heat during the day is excessive, but the nights are invariably cool, and the air invigorating and exhilerating, in spite of the temperature, owing probably to its peculiar dryness. A mile only to the south-east, at the village of Tambore, the country rises in undulating meadows, beautiful in appearance as an English park, and infinitely cooler than Chyebassa. These advantages in forming the cantonment were either overlooked, or thought of less note than the nearer vicinity of water, Chyebassa being on the banks of the Roro. The Hos are more free from disease than any other people, in consequence of the precautionary measures they take—their nutritive food and drink, and the open airy positions they build in. As a guard against infection or fire their villages are small and scattered, and on the first appearance of any epidemic, they leave their houses and flee into the jungles, living apart from each other. Singbhoom, on the contrary, from the obverse manners of the Oorias, is yearly scourged by cholera, fevers, and small-pox. This latter disease, propagated by the Bramin inoculators, has within the last year spread with fearful havoc into the Kolehan, and most unfortunately simultaneously with the introduction of vaccine, to which the evil has alone been attributed. The rains are not heavy in the Kolehan, but the moonsoon is accompanied by violent storms of wind from the north-west, with severe thunder and lightning, causing many fatal accidents. None of that sultry oppression incident to Bengal is felt at that time of year. The cold season is truly luxurious—" a nipping and an eager air" without fogs or mists. March, April, and May are generally the only unpleasantly hot months of the year; during this period not a drop of water falls occasionally for upwards of six weeks; the aspect of the country loses every trace of verdure, and the dried stony soil reflects with unbearable force the rays of the sun. Vegetation is vigorously restored on the commencement of the rains, and as these are not accompanied by the gloomy sky and unceasing torrents which fall in the plains of India, the landscape is pleasingly checquered by passing showers, and the tender foliage of the forests glistens alternately with golden breaks of sunshine, or mellowed shades of green. To the south and east of Singbhoom, and in the most dreary and deserted parts of the country, are remains indicative of the former presence of opulent and industrious people, but so decayed by time, and engulphed in the labyrinths of untenanted forests, as to be unmarked by any record or history, save that they must have been of prior origin to the first known Bhooians of the country. In Lalgurhpeer, the remains of a square brick fort well ditched round are still visible; it is said by the Bramins to have been the seat of a Raja of the Raj Dom tribe, who with all his people, houses, and riches, were destroyed by fire from heaven, for having slain a cow and wrapped a Bramin in the hide, which tightening as it dried, squeezed him to death. Only one man, a *taunty*, escaped, who was warned by the bullocks he was ploughing with, of the fate which impended over the place; it is called Kesnagurh to this day. In Anlahpeer, to the far south, and on the borders of Rorwan, a few Koles of the poorest kind, have built a wretched straggling hamlet near the banks of what once was a truly magnificent tank. It is called "*Benoo Saugur,*" and is said to have been built by one Raja Benoo, who fled from the place owing to the incursions of the Mahrattas. This was probably during the days of the celebrated "Morari Rao," for judging by the trees which now luxuriate amidst the buildings, the place must have been deserted and in ruins full 200 years ago. The tank which I paced, as well as the jungle allowed me, is about 600 yards square. On the east bank are the remains of a handsome stone ghaut; the west side may be similar, but was inaccessible, by reason of thickets; on the summit of the ample bund surrounding the water, lie stones richly carved; it is probable they once constituted small temples ranged around. In the centre of the tank is an island, crowned by a temple, now almost a shapeless mass. On the south-east corner of the tank are the debris of a gurhee or small fort, which appears to have been a parallelogram of about 300 by 150 yards, enclosed by a massy wall, with towers at the corners. In the centre are two sunken platforms, with stone steps descending into them, in which lie idols in all stages of decay; some of these were buried many feet under a loose reddish soil, having the appearance of decayed bark. Among several Gunnèshes, Parbuttees, Mahadeos, and other gods of modern Hindoo mythology, were others which my informants, the Mohurbunj Raja's Mookhtar, the Burkoonwr of Rorwan, and several of their Bramin attendants, could give me no history of. Three of the best preserved of these I took away with the help of some Nagpoor Dhangars, not one of the people of the country daring to touch them. About 300 yards to the south of the gurhee is another mound or hillock of broken bricks, which I was told was the "Kutcherry" of the Raja. To the west of this, and all along the bank of the Tâlab, the plain now covered with jungle grass, and here and there cultivated with *gora dhan* by the Koles, is scattered with bricks, showing that a substantial town or bazar must have existed here.

Still further southward, about eight miles, and two miles beyond Rorwan, these remains occur in greater number, and better preservation, and the road leading to them is replete with debris of the most melancholy and dreary nature, rank grass waving over tanks, some of great magnitude, which lie on every side. Thickets and briars matting over richly carved ghauts and temples; old avenues and plantations whose symmetry can now scarcely be detected amidst overwhelming jungle, offer a vivid picture of what these deserted tracts once were; and the mind instinctively pictures to itself a once opulent and prosperous people, whose forgotten dust rests perhaps within the funereal shades of these ancient forests, as their fates and fortunes, alike unknown, lie buried in the elapsed vastness of time!

The temples at Kiching are still resorted to by pilgrims from the south, and kept in tolerable repair. There are two of them, but only one made use of in offering sacrifices, &c; it is in an unfinished state, the materials for the dome lying on the ground round about, as if they had been hastily abandoned. A narrow path winds up to the temple now in use, through dense thickets and forest trees, among which lie, thickly scattered, portions of elaborate sculpture, idols, and alto-relievo figures of men in armour on horseback, nauchnees, jugglers, servants, &c. &c. These two temples are part of a circle of sixty similar ones (according to the Déoree, or high priest of the place) which with sixty corresponding tanks are placed two miles a part, in a circle of forty miles in diameter. Of these, the temples at Kiching and some others at Odeypoor, on the banks of the Byturnee, are alone visited. A superstitious dread deters access to the others, and in truth they are buried in such awful wilds, as naturally to excite the fears of such a credulous race. The tank at Kiching lies to the north of the temple, and appeared to be about 300 yards long, and sixty or seventy in breadth; it is said to be of masonry, but I did not examine it.

In the vast saul forest which spreads over the boundary of the Kolehan and Baumunghattee, and about twelve miles from the nearest village, are two extraordinary pools of water, evidently artificial, called the "*Soormee* and *Doormee.*" The former is about 300, the latter 200 yards long, dug in a perfectly straight line, and separated by a bund or causeway, so that they appear to have formed a long water chaussee, or avenue, leading to the Kurkye river, which is not above half a mile off. No traces of paths or buildings or artificially planted trees were here discernible. Absurd stories are told of the fatal effects of the water on man and beast, by the Bhoomijes, who are the exorcisers of unclean spirits in the jungles, and the spot is carefully avoided by the superstitious Koles. I visited the "*Soormee Doormee*" while laying down the boundary in 1838-1839; we had great difficulty in forcing our way through the dense jungle, not the trace of a path existing, and I verily believe we were the first party, for many generations, who had intruded on this abode of utter silence and seclusion. There were fine fish swimming in the water, and the traces of deer in numbers round the bank, as they come nightly to drink there. It was with difficulty however I could prevail on a few to follow my example in taking a draught from the pool.

In none of these places could I perceive inscriptions of any kind, and I cannot here avoid expressing a regret, that my ignorance of Indian antiquities prevented my throwing any light on the history of these truly interesting, relics;—Interesting, as being situated in such unknown wilds, as indices of the entire revolution that has taken place in the political history of the country, and as proofs of these untrodden jungles having once been the seat of opulence, industry, and power, so utterly decayed, so long departed, as not to have left a record behind.

(To be continued.)

NOTE.—Although it is very improbable that any of our readers should be enabled to visit the Hodesum, with sufficient time at their disposal to examine closely, and carefully, the ruins at Kiching, and Lalgurhpeer, I cannot help requesting particular attention to Lieut. Tickell's notice of these interesting remains, with a view to our procuring at some future time a more detailed account of them. The best thanks of all interested in the study of Indian History, are due to the author of the excellent paper now under publication, for his having (I believe I am right in saying) discovered in the wilds of the trackless forests of Chootia Nagpore, these singular traces of a people, and a power, whose name lives hardly preserved by even local tradition. His ample, and able statistical account of Hodesum is of real utility, and we must acknowledge that he has done well in foregoing a possibly fruitless search for Antiquarian remains, which would necessarily have diverted his attention from more important objects. As these however have been fully accomplished in the paper before us, I trust that, should opportunity offer, search may be made in the vicinity of these deserted cities for any traces which may enable us to arrive at conclusions regarding their history. A paper which I hope soon to publish (Journal of an expedition to the Naga Hills, by Lieut. Grange) will prove the value of similar research in a historical point of view, by the result of that officer's observations on Dhemapoor Nuggur, now like Lalgurhpeer a mass of ruins in a wild forest, but formerly the residence of the Cacharee Rajas.

Sketch of the Physical Geography of Seistan, by Captain EDWARD CONOLLY, *6th Cavalry.*

Position.

The southern limit of the lower ranges of that portion of the great Caucasian chain of mountains which lies between the 62nd and 65th meridians of east longitude, is well defined by the lower, or Dilaram road from Girishke to Furrah. From this line a vast desolate tract extends, part of that great desert, named rather loosely by Malcolm, the Salt Desert. Sloping gradually to the south-west, it descends, like the plains of Tartary, in steppes, till its progress is arrested, on the south, by a high sandy desert, and on the west by a broad and lofty chain of hills (1) which stretches in a south-west direction from probably near Ghorian to the Surhud, and thus perhaps connects the Parapomisan mountains with the Southern Kohistan. The south-west corner of this thus interrupted plain, the last and lowest steppes, are Seistan (2).

Nature of the country.

The country so named, of which the length may in round numbers be estimated at 100 miles, and the breadth at 60, is entirely composed of flats, with the exception of one hill, (3) (the Koh-i-Zor) and in its whole extent, not a stone is to

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1. This range is known by different names; in the latitude of Killah Rah, it is called, from a celebrated hill, Atishana near Bundau, Koh-i-Bundau—and opposite Zirreh Koh-i-Pulung,—the hill of leopards.

2. That is modern Seistan. In ancient times, the country known by this name was only bounded on the north by Ghare and Zemindawer, in the latter of which a learned orientalist has recognized Zabul. As the present sketch is intended solely to explain the map, and the ancient history and geography of Seistan and the countries around it will form the subject of a separate memoir, no allusion to the latter will be found here.

3. In the Univ: Gazetteer, 1837, you read, "The country is generally mountainous"? There is a small hill called Kohga, on the north-west of the Hamoon, which is sometimes surrounded by the water of the lake; at present it belongs to the chief of Laush.

be met with, except a few rounded pebbles in the beds of rivers. The soil is either the light and soluble earth of the desert, or the still lighter alluvial deposit, and there is hardly one tree, and not one of any size, in the whole country. From the north and north-east, it receives the waters of numerous rivers, which partaking of the nature of mountain torrents, at one time of the year rush down with great violence, almost black with mud, and at others are either quite dry, or flow in a clear, languid and shallow stream.

Effect of the rivers.

It requires but little knowledge of Physical Geography, to judge of the effect of a large body of water discharged in this manner, with varying velocity, into a basin, incapable, from its nature, of offering the slightest resistance to its progress. The water hurries away to the lowest spots, and there, when its turbulence has subsided, drops its loads of earth, till in process of time these low spots have become elevated, and the water is driven to some other place. It necessarily results, that the level of the country must constantly be altering, and that as the whole bed of the lake is thus gradually filling up, the waters spread themselves over a large surface every year. This extension is much assisted by the deposits which take place in the beds of the rivers at their mouths, which deposits are of course ever on the increase as the current becomes less rapid, when layer after layer of settling earth diminishes the slope. In consequence of this filling up of their beds, nearly all these rivers overflow their banks on entering Seistan.

Ancient appearance of the country.

Of the correctness of these views, the whole country exhibits many proofs, even to the passing traveller; and a scientific resident might probably be able to develop much of the interesting history of the progressive changes. For a long period of years, however, Seistan would seem to have presented much the same general appearance as is attempted to be delineated in the annexed sketch.

The violent action of the swollen streams was in a great measure moderated by large bodies of water being drawn off in canals, which were conducted, in some places, as far as forty miles, through dry and sandy tracts. Massive embankments had been also constructed by rich and enlightened governments, which prevented the water from flowing without controul, and confined it within certain bounds for the purposes of cultivation.

It is only of late years that a very remarkable change has taken place in the aspect of the country, to explain which it will be necessary to say a few words on the geography of its lakes and rivers, at the period represented in the sketch, when Captain Christie visited Seistan.

The Helmund.

The lake, which stretched in a direction parallel to the Bundau hills, was about seventy miles long, and had an average breadth of eighteen miles. Its principal feeder, the Helmund, is not inaccurately laid down in our maps, with the exception, that the Khash-rood is not one of its tributaries, and that the Arghandab enters it just below, and not above, Killah Beest. This river, in the dry season, is never without a plentiful supply of water; during the swell, it comes down with astonishing rapidity, equal in size to the Jumna. As soon as it has left the hills, its bed is generally four or five miles in breadth, the water more easily penetrating the readily yielding sides than the bottom, converted into a sort of pavement by the stones rolled down from the mountains. The stream has not however of late years occupied the whole breadth, though in former times, before it had cut itself so deep a bed, it would appear to have done so near Girishke; for example, there are ruins at opposite sides of the river of forts known to have been contemporaneous, and under which the water must have flowed (for they are built in a semicircle, without a wall on the river face) though there is a space of four miles between them.

The stream now hugs its left bank, above which rises in vast mounds the sandy desert. The ancient right bank is well marked by the high cliffs of the plain before mentioned, which are every where hollowed and indurated by the action of water. The rich space between this bank and the modern channel, of which the average breadth is rather more than two miles, is the country of Gurmsehl.

The Helmund receives the waters of one or two small streams from the desert on the west, which will be mentioned in the description of that tract.

The Furrah-rood.

The three rivers next to be described, have experienced little change since 1810. The first, the Furrah-rood, passes a little to the north of the fort of Furrah, and runs close under Laush, about twenty miles south of which it enters the Seistan lake. I am not aware of this river receiving any tributaries in the lower part of its course. (4) The Furrah-rood is nearly dry for the greater part of the year, water is however confined in many places by bunds or natural hollows, and is always to be found by digging a few feet into its bed, which is the case with the Helmund, and most of the rivers of eastern Asia. (5) During the spring it is a broad and rapid river, but not half the size of the Helmund.

4 The Gizea found in Arrowsmith's Map of Central Asia, 1831, must be either erroneously laid down, or is some insignificant stream

5 Baber remarks this in his memoirs.

The Adrascund.

About twelve miles west of the mouth of the Furrah-rood, a river discharges itself into the same lake, which though equal in size to the last named, has nearly escaped the observation of geographers (6): this is the Adrascund, which crosses the high road, some fifty miles south of Herat, near a place where it is joined by the Rod-i-Gez, celebrated for the sweetness of its waters. After flowing east by south, through the plain of Subzawar, it sweeps round to the west, runs down a narrow valley called Jaya, and passes a little to the south of the valley of Pomegranates,(7) where Capt. Christie crossed without recognizing it. Of the course of the stream for a short distance after this, I am doubtful, but its further progress to the west must be soon arrested by the inclination of the ground from the western range of hills before mentioned. Entering the tract, from its extreme barrenness called the Waste of Despair, (Tug-i-Noomed) (8) its name, which since leaving Subzawar has been changed to Jaya, is again altered to that of the fallen angel Haroot. It then flows a little to the west of Killah Rah, the northern part of which it waters, and with a nearly southerly course empties itself into the lake of Seistan. A few miles above its mouth, the Herat receives a small salt river, the Khash Koduk, which has water only in the spring, when it drains the marsh of Furrah.

The Bundau river.

During the wet season, a mountain torrent, rather than a river, flows S. E. into the lake from Bundau, by the name of which place it is known. The Bundau has a course of less than 50 miles, and only deserves notice as being, as far as our knowledge extends, the solitary stream which enters Seistan from the west.

The Khash-rood.

The Khash-rood has for so long a period occupied an erroneous position on our maps, that its real course deserves particular attention. After crossing the Herat road, it travels south-west to Seistan, but in 1810 it did not enter the lake; its waters just below Chukhnasoor, having spread themselves out over a low tract called from a species of marshy grass (aishk) which abounds there, Aishkineik. That the Khash-rood has been stated to empty itself into the Helmund at Kona, sheea, may perhaps be accounted for, by supposing some confusion between the name of that post and of Chukhnasoor, of which the more correct appellation is said to be Khanehsoor, or the house of marriage, it being there, according to tradition, that Giu married a daughter of Roostum.

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6. Gerard first traced its course from the Herat-rood to Anardurch.

7. Anardureh.

8. I do not exactly understand the limits of the plain known by this name. North of it is a great salt tract, the Nimuksar.

The Khash is a much smaller river than the Furrah; a large proportion of its waters are drained off for cultivation, and during the greater part of the year its channel, which is never of any great width, only contains waters where it has been banked in, or in a few deep pools. On its banks and in Seistan, the Khash is always called the Khoosh, and in some geographical works is written Khooshk, or the dry river. The Aishkineik was a marsh during the swell, and dry in summer.

The Ibrahim Jooi is made in our maps to fall into the Khash, but in reality a little below Bukheva, it spreads itself out and forms a marsh also called Aishkineik, which is, however, usually dry, there being little water lower than the Ismail Khan. I know of no stream flowing into the Khash from the west, except a small river which commences, I was told, somewhere below Bukheva; from the east it receives the Rod-i-Reghi, the direction of which will be seen in the map; but of the early part of its course I am doubtful.

Other smaller rivers.

To the west of the Khash three smaller streams flow into Seistan from the north-east; the Rod-i-Khar, the Chabulk, and the Koospas. The first and least, at the period of which we are speaking, discharged itself into the Aishkineik above Chukhnasoor.

Of the other two, the Chabulk rises in a spring called Chusmeh Meshak, about six miles south-east of Toojk, below Furrah; the second at Siah-ab, a hill between Koormalik and Bukheva, celebrated as the spot where the Vuzeer Shah Wulee was put to death. These two rivers formerly debouched in a lake some miles east of the principal one, and known by the name of Duk-i-Teer, a promontory on its eastern bank, famous in the fabulous history of Seistan, as the place from whence Roostum procured the arrow with which he killed Isfundear.

Of the extent of this lake I have no very precise information. On the north it reached to within eight miles of Jowaine; it was probably connected with the Aishkineik on its south, and when swelled by extraordinary floods, may have even been united with the lake of Koh-i-Khwajeh, as a high bank prevents its extension to the eastward.

It also received some of the waters of the Helmund by branches striking off north and east from that river, after it had passed Rodbar. Of these the principal, which left the parent stream near Deh-i-Nusser Khan, was called the river of Ilumdar, and another of smaller size, but since become remarkable, went off from Khwajeh Ahmed.

Such was Seistan for a long time. The Helmund glided along each succeeding year in nearly the same channel it had occupied the year before, and the inhabitants on its banks were too ignorant to remark or to care to counteract the consequences they could have hardly failed to foresee, of the change which was gradually preparing by the annual deposition of alluvial matter. The great embankments, whose ruins still record the names and wisdom of kings of yore had been neglected or destroyed, and the canals which enriched more than one desert district, were dry, and the fields they had watered a waste. Zirreh, so celebrated in history, which defied the arms of Chengiz and Timour, did not boast one inhabitant. Of Tragu, Killah Put, and Pshaweroon, and of other great cities, through the ruins of which the traveller wanders for days, all that remained were the walls and the name.

Change in the aspect of the country.

About nine years ago an unusually large inundation changed the whole face of the country. The main stream of the Helmund deserted its old bed, and cutting for itself a wide channel out of that of the small branch which went off from Khwajeh Ahmed, carried the greater part of its waters to the Duk-i-Teer. This lake was insufficient to contain so large an accession to its mass; the superfluous waters forced themselves a passage through a narrow and low neck of land to the westward, and discharged in this manner into the old lake, thus connected, and made the two one.

The inhabitants of Seistan were at length roused from their indifference by a disaster which threatened their very existence, as it deprived them of the means of irrigating their fields. United by the common danger, a large body of men of the different tribes assembled together, and in the course of the ensuing summer raised an immense mound across the river, near the place where the waters had diverged; but through their ignorance of physics, their labour was thrown away. The next flood turned the embankment, and the river, as in the preceding year, passed away from Seistan. Since that time the Seistanis despairing of success, have made no further effort to reclaim their river. The greater part of the water of the Helmund is discharged into the Duk-i-Teer by several mouths, and the now scanty stream of the old bed, confined by numerous bunds, hardly suffices to water the lands it formerly overflowed, and is a never ending source of contention, between the various tribes which inhabit its banks.

Name of the lake of Seistan.

Geographers have been at a loss to account for the many different names which have been given to the lake of Seistan. The solution of the puzzle is very simple.

The Persian word Hamoon حامون signifies a plain level ground. (9) The Seistanis apply the term to any expanse of water.

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9. It is frequently found in this sense in Persian authors, as in the Bostan :—

Ze deria amá bur amud Ruse,
Sufur Kurdáh deria wo Hamoon buse.

I know of no instance of any author having used the term to express an expanse of water. The similar sounding name of the Oxus, Amoo, is probably descriptive of its periodical swell.

During the swell, as before observed, the Helmund overflows its banks, and water is sometimes carried into low spots, from which some ridge intercepts its retreat, when the river again retires to its bed. In this manner numerous small lakes were formed, and each of them was called a Hamoon, and was distinguished by its particular appellative. The united waters are styled the Hamoon without any distinctive adjective. The old lake also was in former times known as the Hamoon, though sometimes, as now specified by the name of the celebrated hill in the midst of it, the Koh-i-Zor, or Roostum, or as it is more generally called from a modern saint, Koh-i-Khwajeh.

Zirreh.

The Hamoon of Zirreh was some miles to the south the Hamoon of Koh-i-Khwajeh, and was perhaps formed in the manner above described, from the overflow of that lake; though it is not improbable that a natural or artificial branch of the Helmund went direct to Zirreh. This Hamoon will be mentioned in the sequel. The lake of Zirreh, and many smaller ones, some of which are marked on the map, are either dry, or are drying up in consequence of the diversion of the Helmund. On the site of one, Boorj, one of the four capitals of Seistan has been built, and the place of water is supplied by corn-fields.

I cannot learn that the principal Hamoon, or any of the smaller ones were ever styled in Seistan, Loukh; I suppose therefore, that title to be a Persian or Afghan fabrication, or it may have obtained currency through some misconception of the meaning of the person who originally employed it to designate the lake, to many parts of which the name would be sufficiently appropriate, "Loukh" in Persian and Pushtoo signifying "rushes:" but this word is not known in Seistan, where a rush is invariably called "Toot."

Description of the lake.

The most fitting appellation of the Hamoon is the classical one of Aria Palus, for it is in reality almost every where a mere marsh. It has rarely a depth of more than from three to four feet, and is almost entirely covered with reeds or rushes. There is however a considerable difference in the appearance of the old and new lake, particularly in the dry season.

Of the Duk-i-Teer, I have only seen the south part; there it is a large sheet of water, thickly studded with reed-topped islands, its depth averaging about four feet, and having a very muddy bottom. The reeds are tall and close together, but you can walk through them without difficulty. To the north there is probably less water, and the reeds are not in patches, but cover the whole surface. In the old Hamoon, on the contrary, the reeds are in most places stiff and thick with age, and stand so close together in clumps, their roots being united by little hillocks of encrusted earth, that quadrupeds even are unable to force their way through them.

Navigating the old lake.

This is particularly the case round the hill of Roostum, the only mode of reaching which in the summer is by a ditch two or three feet wide, and having an average depth of three feet of water, very salt, rank with putrifying matter, and nearly as black as ink. Men, horses, and cows wade through the slime, people of the better classes are conveyed to and fro in a species of canoe called Tootee, and peculiar, I believe, to Seistan. Four or five bundles of reeds are fastened together by rushes, or by the flexible tops of reeds, the cut edges forming a square stem, the upper ends being tied in a point for a prow. The passenger seats himself in the middle, one man pushes from behind, and another pulls at the front. During the wet season the tootees are made of larger size, so as to admit of as many as four men sitting in them, and are propelled by paddles and long poles, but they are rarely taken into the deeper water, where the waves would wet and sink them. These boats last only for a few days, for the wet reeds soon become rotten and heavy; they are made and navigated by a particular class of men called Syads, a word which expresses their profession of fowlers. The ditch road I have mentioned has to be renewed every year when the waters have subsided.

View from Koh-i-Khwajeh.

The old Hamoon can be seen to the greatest advantage from the tops of the hill of Roostum, from which elevated position the eye travels uninterrupted over a plain bounded only by the horizon, except on the west, where, at fifty miles distance, rises the chain of the Bundau hills.

It was in September that I took my station on this hill; immediately beneath me lay a yellow plain, as level as a calm sea, formed by the tops of reeds, and extending north and south long beyond the reach of vision. On the east it was bounded by a strip of paler yellow, marking the borders of the lake, where the less thickly growing reeds are annually burnt down, and a few poor Kheils clear away the ground for the cultivation of water-melons. Beyond again, in this direction, appeared the dark green of the tamarisks, whole forests (11) of which fringe the lake. Here and there as we looked around on every side, were seen patches of blue water, and on the west a large clear lake stretched away till out of sight. All seemed waste, but the towers of Chuling and Sekoha showed like white specks in the distance; and winding and shining through the tamarisks, you might trace the course of several streams, which once formed the delta of the Helmund, and in which water is still retained at intervals for the purposes of agri-

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11 Lest I be accused of a contradiction, as it has been said that there are no trees in Seistan, I may mention, that the tamarisks rarely, if ever, attain any great size in that country.

Saltness.

culture. The water of the Hamoon is salt (12), but not at all places equally so, the intensity varying according to the depth, nature of the soil on which it rests, and the proximity to the mouths of the rivers. The Seistanis boast that the water of their country is the best in the world, that it gives an appetite, and promotes digestion; even when most distasteful, it is said not to be injurious, and the garrison of Koh-i-Khwajeh drank no other than that of the ditch path, described above, which is so brackish that none of our horses after a fatiguing march in the sun could be induced to drink it.

On the increase or diminution of the waters.

It has been stated that the Hamoon is every year spreading over a large superficies, which requires explanation, since it seems at variance with the received theory of the other inland lakes, the Caspian, Aral, &c. all of which are said to cover a less space now, than they did in former times. With only a general knowledge of the geography of those seas, it is dangerous to hazard a conjecture regarding them, but it seems by no means improbable that much of the land which is represented as shewing traces of having once formed part of the lakes in question, was covered with water before those lakes had occupied their present beds, proving therefore no more than that the water has changed its position, not that it is less in extent. The Caspian on the north, where traces of inundation on lands now dry are the most remarkable, is shallow, marshy, and covered with reeds, as if the water was gradually deserting it. It must however be borne in mind, that as the lake spreads, it offers a large surface to the action of evaporation, and that in proportion to the apparent increase, there is a real diminution in bulk.

Evaporation.

The evaporation in Seistan must be very great. The heat in summer is said to be more oppressive than that of Candahar, and for half the year, a strong steady wind blows from the snowy mountains above Herat, to compensate the exhaustion of air in the burning desert to the south. This wind, which is called the "Bad i sud o bist roz," "a wind of 120 days," is confined to a breadth of about 80 miles, being bounded on the west by the Bundau hills, and extending no further east, it is said, than Khash.

I should have desired here to give some account of the natural history of Seistan, but of the study itself I am nearly ignorant; the field is, I suspect, a barren one, and the season at which I visited the country was

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12 Nothing but common salt is found in Seistan itself. The plain of Furrah is a saltpetre marsh. Salt is found in patches in various parts of the desert, that of Peer i Rizre in the Gurmsehl is celebrated for its whiteness.

unfavourable to the prosecution of it. A description of the Hamoon however would be incomplete, without some notice of the more common animals to which the lake gives birth or affords nourishment.

Natural History.

Wild Hogs

The marshy and reedy parts of the lake shelter innumerable wild hogs. In a small history of Seistan written by a native, it is stated, that when a man cultivates a piece of ground, he calculates on losing half the produce by their ravages. The villagers, as may be supposed, spare no means to destroy these destructors; they lay snares for them, shoot them, and hunt them down with dogs. The dogs are large, strong, bold animals, resembling the Bhil dogs of India, and are regularly trained to hunt. Accompanied by a dozen or more of these you sally out, and as soon as you approach the reedy grounds which the hogs frequent, you perceive on all sides the earth ploughed up with their tusks. The Seistanis, who are eager sportsmen, strip, and wade nearly naked through the mud. Soon a bark is heard, the note is immediately taken up, and all the dogs join in the cry like a pack of English hounds. After a due quantity of holloing and splashing the game is brought down, or if of large size, is held at bay till the huntsmen come up and despatch it with their matchlocks. The Seistanis though Sheeahs, and like all Sheeahs full of prejudices, do not object to handle the hog: the nearest huntsman cuts up the carcase and gives slices of it to the dogs, and the rest is brought home as food for them.

When the waters are rising in the spring, herds of thirty or forty are to be seen swimming one behind the other from island to island. Large numbers are thus sometimes collected into a small spot, and the hunting then becomes most dangerous; hardly a year passes without lives being lost in the sport.

Insects.

The hogs are however a trifling nuisance compared with the hosts of insects bred in the stagnant waters. The mosquitoes are so troublesome, that in the spring, the poorest villager is obliged to make a small room of a coarse open cloth called "kirbas," into which he retires with his family as soon as the sun sets. "Clap your hands together," said a man whom I asked to give me some idea of their number, for when we passed through Seistan there were none, "and the palms will be covered with blood." Fleas are said to be no less numerous, and from them there is no escape; but the worst plague of all are the flies. I had been sometime in Seistan before I understood why the inhabitants complained so much of these insects; a few would now and then settle on the inside of our horses thighs, (every other part of the body being always protected by cloth) and where they-bite a small stain of blood is left, so that the animal was marked as if leeches had been applied to it; but this was all, and though every one said, "You have not seen the flies, a cold night killed them just before you arrived, &c.," I began to suspect that the reports I had heard on the subject were fabrications, or at least exaggerations. I was mistaken: it was our last march in Seistan; we were approaching Chukhnasoor, and our road lay over some soil which the water of the lake had lately left, and which was hard, dry, and broken into innumerable small cracks: from these cracks such swarms of flies issued, that I can only give an idea of their numbers, by comparing them, to bees near a hive which has just been disturbed. They buzzed round our faces, and bit us in every less protected part, as the ancle above the shoe, the neck, &c. When we reached our halting ground, Peer i Risri, on the bank of the river Khash, their numbers were incredible; the horses were nearly maddened, and the servants declared they would all be killed. We lighted fires on the windward side of every horse, smothering the flame to make the smoke rise: this was not sufficient; we could not drive away the flies from our own persons, and the heat was too great to allow of our covering our faces with a cloth. On the opposite bank was a thick jungle of dry reed, we set fire to it, and huge volumes of smoke driving over us, we escaped our tormentors at the expense of sore eyes, and being blackened with ashes. During the night, afraid to face another day here, we hurried away to Ruddeh, glad to be quit of the flies and Seistan.

The Seistan fly resembles the common fly, but is twice as large. In the spring it is of a pale brown with dark spots; as the year closes the colour turns black, and soon after the insect dies. The bite is painful, but less so than the sting of a wasp, and the pain is only momentary.

Horses.

To the annoying attacks of the flies, is generally attributed the remarkable mortality which prevails among horses in Seistan, and it is not improbable that the irritation produced by their bites may have considerable effect in promoting the evil. There is hardly a horse in the country. Of more than 5,000 brought by Kamran in his expedition, about four years ago, not one is said to have been alive six months after the return of the army to Herat. This is of course a gross exaggeration, but there is no doubt that the loss was immense. The few horses which the Seistan chiefs keep for state, are tended with the greatest care in dark stables, from which they never issue, unless on some important occasion, except during the winter. When brought out their whole bodies are covered with cloth, particular care being taken to protect the belly, for a bite in that part is considered fatal; they are never galloped, for it is believed that if a horse sweats, he is sure to die. I bought a horse from a Belooch chief, which Rhohundil Khan of Candahar had sent down as a present four years before. The beast had never been mounted, had hardly left the stable, and the owner was glad to accept any trifle for it to escape the expence of its keep.

Disease of the horse.

The symptoms of the fatal disease, which is called "Soorkh surgeen," or red dung, are as nearly as I could collect from inquiries among the natives, and my own observation, as follows. First, the hind legs swell. The Seistanis then say "Bad gerift," "the wind has seized him," an expression applied commonly to a rheumatic complaint. One of my riding horses refused its food; we were standing by inquiring the cause, when a man who was looking on, came up, opened the mouth of the animal, and exclaimed, "Your horse will die—he has got white gums:" this is the second symptom. The dung now turns of a vermillion colour, the skin is frequently covered with pimples, the urine is bloody, and at last a paralysis seizes on all the limbs, and soon after death ensues. The eye during the progress of the disease is of a pale yellow colour, only a few specks of white remaining, and it is said that the "tail dries up," so that you can pull out the hairs by hands full. The disease in some cases I witnessed, killed in three days; but horses passing through Seistan generally live for a few months, dying however in certainly two cases out of five, within the year. The Seistanis having found all their remedies fail, now generally abandon a horse to its fate as soon as it is taken ill. Bleeding, the most obvious treatment, is, I was assured, useless, and the only mode of cure recommended to me, (warm goat's blood) is evidently absurd. This epidemic is confined to Seistan; it is not known at Jowaine, or Neh, or even Kuddeh. The Seistanis pretend that it has only appeared in their country of late years, but the ancient Zarangeans, and the armies which fought against Timoor, were foot soldiers, which argues the contrary.

Camels.

The climate is unfavourable, but in a less degree, to camels. Both these animals and sheep die in great numbers from eating the leaves of a plant called Trootk. Not more than 3 or 4000 camels could be procured in Seistan; when required, they are brought from Gurmsehl, or the sandy desert to the S.E. Sheep. Sheep feed generally on a small creeping plant called Boonoo, which abounds in the salt grounds, and which tastes like salt itself. Boonoo is sometimes used for horses' food, but it is first washed, by which process it loses much of its bitterness. There are many varieties of grasses all over the country, but several of them were said to have noxious qualities. (13) The only domestic animal which thrives well except

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13. I collected specimens of them which are not at present available for verification. The most common is called Kirta, when we passed through Furrah, that whole plain was covered with it, and resembled a rich English meadow, sheep and cows thrive on Kirta, but it acts on horses as an aperient.

Cows.

the mule and ass,—the latter of which is very common and useful, is the cow, which is much valued in the neighbouring countries. People send their cows from a distance to pasture on the reeds of the Hamoon, which soon bring them into condition, but a cow thus fattened, though looking sleek and plump, does not yield the same quantity of milk as the Candahar cow, which revels on artificial grasses; for the first, six seers of milk is considered a fair supply; at Candahar twelve seers are commonly drawn. The Seistan cows are exported, three or four hundred every year, to Candahar, Persia, &c. I heard a well attested story of one which had returned by itself from Teheran.

Stalking.

Cows are put to a singular use in this country (14); they are taught to hunt. In the spring, when the lake is covered with water-birds, the cow quietly crops the reeds, and the birds used to its presence, do not rise at its approach. Behind it skulks the huntsman, his matchlock resting on its back. The cow moves along very quietly, first lifting one leg and then after a pause another, every now and then stopping and feeding, till it comes to within a few feet of a dense mass of fowls. The hunter then fires, picks up his prey, and continues his sport as before.

Many cows are said to die from a disease called "Murk," (a corruption perhaps of "Murg," death) when you are told, a maggot is always found in the liver.

Birds.

The water-birds of Seistan I did not see, but I could well credit the reports of their extraordinary numbers by the appearance of many parts of the grounds which had been lately deserted by water; in some places the marks of feet were so numerous as to remind us of an etching. Geese, ducks, and teal, are tamed. A very fine species of tame duck is brought from Bunpore, and is commonly offered as a present in Seistan.

A famous shot, a cousin of the principal chief in Seistan, Mahomed Reza Khan, wrote out for me a long list of all the birds with which he was acquainted, with remarks on their habits, &c. but his notes are more amusing than instructive.(15)

Fish

There are probably few fish in the lakes, or rather few varieties of fish. In all the rivers we crossed from Girishke to Herat, though we frequently threw in poison, and caught fish in hundreds, we only found two species, a carp and a silurees. The Heri-rood has

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14. The same custom is known in Afghanistan; see Elphinstone.

15. Thus he speaks of the Kohtan, or pelican, the water-carrier of the birds, which fills its bag with water, and flies far away into the thirsty desert, where the little birds exchange the food which they have collected, for a drink of his water. Or of the "Furdeh begirum," or "I'll catch him to-morrow," a kind of bastard hawk. Every morning it resolves to go a hunting, but scarcely has it made two circles in the air, when a piece of cow-dung attracts its eye, "Well never mind," it exclaims, settling down on the cow-dung, "*I'll catch to-morrow.*"

also the dace, and in the Hamoon there is a small fish much esteemed, called Aujuk; it was not in season, and I did not see one.

The more common wild animals are wolves (which will attack cows and even men) jackalls, hyænas, foxes, porcupines, hedge-hogs, the kangaroo-rat, otters, &c.

The skins of the last are exported to Bokhara, and sell even in Seistan for three or four rupees. The leopard, or as a native described it to me, "the tiger's younger brother," is found in the western hills, to which it gives a name.

Wild asses and deer abound in the desert which lies between the Helmund and the Bundau hills. This tract differs much from the sandy desert south of the river. Little sand is found on it, except in strips of no great width. For the most part it consists of a hard, compact, light-coloured clay, over which a few shrubs, tamarisks, and grasses are thinly scattered, but sometimes it is perfectly destitute of vegetation for miles. Large spaces are found covered over with rolled stones, nor could we in every case assign a plausible explanation of their presence. The few isolated hills are marked on the map.

Deer.

Water is procured by digging wells in the beds of one or two small rivulets, such as the Murja and Tagrish, which are dry except after a fall of rain, and a tract runs through the desert, called Shund, where water can always be found within a few feet of the surface. Formerly brick wells were to be met with at every 10 or 12 miles on the caravan routes, but they are now almost all of them purposely destroyed by the Afghans, that the plundering Belooches may be prevented by want of halting places from invading them.* From the scarcity of water in the interior, it is almost destitute of animal life; the deer are found near the rivers, but chiefly, and in immense herds, at a distance of generally 7 or 8 miles from the Helmund, where they are almost intermixed with large flocks of sheep, which are sent there from the banks of the river to fatten on a grass called Muj. The mode of catching the deer is curious. The canals for irrigation are always cut as closely as possible to the cliffs of the desert, a narrow space only being left for a high road. The traveller in the Gurmsehl will remark the outer or desert edge of the canals lined for miles with a slight railing of threads raised on small pieces of stick; at every one or two hundred yards a gap is left. Here in a pit dug for the purpose on the inner side of the canal, sits crouching the hunter, the muzzle of his matchlock, which rests on the edge of the pit, being concealed by a parapet of small stones.

In the twilight, either morning or evening, the deer steal from the dry desert to slake their thirst in the canal, sometimes singly, sometimes in herds, one walking quietly behind the other. A troop is seen approaching; on reaching the edge of the water the white line is perceived, and the leader afraid to cross it, turns, and followed by the rest walks trembling along side of it till the spot is reached where the hunter lies concealed. This is an anxious moment; the deer pauses as if to consult with his brethren. Frequently the marksman in his eagerness moves, a stone falls down from the parapet, and the startled herd scamper off to the desert again; but they must soon return. As the poor animal which has been once scared returns half dead with fear and thirst to the dangerous spot, you can hear its heart beating. Slowly, and step by step, frequently stopping, and looking round, it at length has neared the water: it stoops to drink: the muzzle of the gun is within a few inches of its head: before one sip has been taken, a bullet has pierced its brain.

Wild asses are not common in that part of the desert I traversed; they are said to be found in great numbers, in herds of two or three hundred, on the plains west of Seistan

Soil.

The soil of Seistan is celebrated for its richness, and many incredible stories were told me of its productiveness. From this fertility it might be supposed that Seistan was a garden,—it is a desert rather. With the exception of wheat, cotton (the plant of which is not half the height of the Indian one, but which bears a large pod) and in some places rice, and a little ill flavoured tobacco, and a few of the coarser grains, bajra, &c. almost the only plants found there are grasses and water-melons. The latter are singularly fine and large, and of several kinds; there are no artificial grasses, no vegetables, nor flowers. The largest tree is a sickly pomegranate. If a Seistani is asked "why don't you make gardens?" he will answer, "We don't know how." Were the people less ignorant and lazy, their country would produce every plant which grows in Candahar or Persia, besides probably sugar-cane, and many of the productions of Hindoostan; there is no reason why trees should not flourish here. The Gurmsehl was equally destitute of them a few years ago, but some 1200 young mulberry trees were imported there by a chief, and the country is now well stocked with them.

Climate.

The climate of Seistan is decidedly unfavourable to human life, and the small proportion of old men struck us forcibly. Fever and ague is the prevailing disease, as might be expected from the immense quantity of stagnant water, to which is superadded the bad effects of hot days and generally cold nights. From the constant high wind and the dust it raises, mixed with particles of salt, or from general ill health, consequent on malaria, one man in five throughout the country has diseased eyes. Nature indeed, as respects comfort, has little favoured

Seistan, and for three months of the year only, the cold months (16), can life in it be said to be enjoyed.(17)

Note on the Map.

Any merits, which the map may be judged to possess, should be attributed to Sergeant Cameron, who surveyed the whole route, except that part of it which lies between Seistan and Killah Beest, for the errors of which I alone am responsible.(18)

The survey has been made only with the compass, but a flat country, with hills interspersed at long intervals is so easily laid down, we had so many well determined points d'appui, and our numerous bearings answered so perfectly, that I feel confident of there being no error of consequence in the portion of the map over which our route lay.

From Gerishke to Herat the route has been taken from Capt. Lander's survey.

The villages in the valley of Furrah are placed from native information. During our stay in that valley there was a thick haze which prevented the taking of a bearing.

The determining what shape to give to the Hamoon, which has a different shape every month of the year, was a point of much doubt and difficulty; the one adopted is that we believe the lake to assume in June, when the water retires from overflowing the surrounding country to its more natural and proper bed. Under these circumstances all that can be hoped for, or expected, is an approximation to the truth, but the only part

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16 The cold weather is very pleasant, and similar to that of the north-west of Hindoostan. Snow has been known to fall in Seistan, but it is a rare and remarkable occurrence Snow lies for five or six days during the winter at Herat. Its boundary is said to be the height of Shah Bed, but it not unfrequently snows at Hilzawar. About two years ago an army from Candahar invaded Herat, while it was encamped at Jaja a fall of snow surprised them, which was so severe that they lost several hundred horses.

17 In apology for the many omissions of this imperfect paper, I may mention that it is only a part of a more comprehensive memoir, which I am drawing up on the subject of Seistan.

18 The untimely end of Sergeant Cameron has been already made public. This man, the son of a respectable builder of Perth, after his return from Seistan accompanied me in a journey through some before unexplored parts of the Eusafzye country. I cannot speak too highly of his zeal for science, industry, ready talents, and gentlemanly deportment. His health failed him in Seistan, from whence to the Helmund, we were obliged to have him carried on a bed. Afterwards he rallied again, but his disease, consumption, was latterly gaining upon him, and I do not think that under any circumstances, he could have lived many months longer. As he was too weak to travel except slowly, I left him at Peshawur to follow at his leisure, and myself went on in advance with a few horsemen to Jelalabad. He had a strong guard with him, and had nearly reached the end of the Khyber pass. Unsuspicious of danger, he had dropped a little in rear of his party, when on a sudden he found himself surrounded by sixty men, while sixty others appeared on the hill above him. Seeing that resistance was hopeless, he dismounted, and drawing his sword, presented it to the nearest of the robbers. Just at that moment a stone struck him on the head and knocked him down; the ruffians in their blind fury rushed on him, and cut him to pieces with their knives

of the Hamoon regarding which I do not feel satisfied, is to the south, where we have fewer opportunities of checking our information.

It is a source of much regret that we did not visit Zirreh; ignorant of the geography of the country, we were not aware of our having travelled away from it, till it was too late to repair the error; and as that part of Seistan is now uninhabited and rarely visited, it was difficult to get any satisfactory account of its present condition.

Of all the places inserted in the map which did not come under our personal observation, the relative positions alone can be depended on. The distances from one spot to another are in many instances doubtful, if not conjectural.

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(*Wednesday Evening, 7th October,* 1840.)

The Honorable Sir E. Ryan, President, in the Chair.

The following gentlemen proposed at the last Meeting, were elected Members of the Society:—

M. P. Edgeworth, Esq.	Capt. W. Loveday, ditto.
Capt. T. Hutton, 37th Regt. N. I.	Dr. J. D. D. Hæberlin.

Library and Museum.

The following Books, &c. were presented:—

Lardner's Cabinet Cyclopædia; History of Denmark, Sweden, and Norway, vol. 3.

Edinburgh New Philosophical Journal, by Professor Jameson, 1840, No. 56.

London and Edinburgh Philosophical Magazine and Journal of Science, No. 104, May 1840, London, 3d Series.

Yarrell's History of British Birds, London, May 1840, 18.

Oriental Christian Spectator, August 1840, 2nd Series, vol. 1st, No. 8th.

Journal des Savans, Janvier, Fevrier, Mars. 1840, Paris.

Bulletin de la Societe' de Geographic, Paris, 1839, 2nd Series, Tome 12, 8vo.

Christian Observer, new Series, vol. 1st, No. 10.

Journal Asiatic Society of Bengal, New Series, vol. 9th, No. 17.

Sketch of the Country between Kurrachee and the Aghar River, MSS.

Sketch shewing the situation of the Coals found in the Tenasserim Provinces.

Sree Vhagavat (Purana) in Deva Nagari, 4to.

Corrected Copy in Deva Nagari Character from the original in the Journal.

Four Pooties in Sanscrit.

A tin box of forged Seals presented by A. Grant, Esq. Collector of Delhi, forwarded by H. M. Elliot, Esq.

Catalogue of the Birds of the Peninsula of India, by T. C. JERDON, Madras, 1839.

Rapport fait a L'Academie Royale des Inscriptions et Belles Lettres (Institut de France) au subject du pied Romain, Juin 1835.

A Code of Laws extracted for the Armenians of the province of Ararat in Armenia, in Armenian, presented by J. AVDALL, Esq.

Annals of Natural History, or Magazine of Zoology, Botany, and Geology, No. 31, June 1840.

Vishnu Purana, translated by H. H. WILSON, London, 1840, 4to.

Les Sultans Mamlouks de Makrize traduction de M. Quatremere. Paris 1840, Tome 1st. Liv. 2nd, 4to.

Museum.

Skeleton of an Ostrich, presented by the Honorable Sir JASPER NICOLLS, prepared in the Museum.

Ditto of a Vulture, purchased, and prepared in ditto.

Specimens of Sponge, presented by Col. D. MACLEOD.

Several impressions of Seals.

The following Works were presented.

Memoir on the length of an ancient Standard measure of the Roman foot, discovered at Candabie, in Normandy.

Notices, of the Galla Tribe at Limmon, on the frontier of Abyssinia, also presented to the Society by M. JOMARD, President of the Royal Geographical Society at Paris, and Member of the French Institute, were forwarded by Major T. B. JERVIS, of the Bombay Engineers. That officer in forwarding them, writes—" Which gives me an occasion of offering a few words on the importance to British interest of securing the good will of a people situated so favourably for throwing in supplies in any case of emergency into Aden, and the facilities the country affords of providing suitable cattle (a large and powerful description of mules) at a very reasonable rate, for the Horse Artillery of India.

" I cannot but express my surprise, that so little concern has been given to the country which several foreign powers are striving by any means, and no doubt with other than mere commercial views, to preoccupy.—The French Government, as may be judged from this little notice, have long had their eye on it; and since that period Messrs. D'ABBADIE, freres, have been deputed to explore its resources, and are now in or about the neighbouring coast. Messrs. ISENBERG and KRAPFT, Germans of the London Missionary Society, have their residence in Abyssinia, and a Mr. AYRSTON is also exploring the country on his own, or what account I know not. It would be well to occupy it by some moderate, able person in the capacity of British Agent, were it only for the purpose of protecting a lucrative trade that might be carried on by British subjects, and which is now altogether in American hands; while it would serve as a general sort of watch tower to keep an eye on the iniquitous traffic in slaves from Zanguebar, Mozambique, and Madagascar, with the shores of Arabia and Egypt. Moohummud Alee, who draws thence the larger portion of the slaves sold in the markets of Cairo and Alexandria, was not insensible to the political importance of the Galla country, and the shores to the east of it."

A memorandum of assets was submitted by the Officiating Secretary, as prepared by Mr. W. H. Bolst, Assistant and Accountant, shewing at credit of

the Society in the Bank of Bengal, ...			Rs. 3,916
Outstanding bills to the 2nd quarter of 1840 for contributions from members, ...		Rs. 5,096	
Doubtful—Parties being absent in England, &c.	1,168		
Irrecoverable—Parties being dead, ...	304	1,472	
		Rs. 3,624	
Add contributions for the 3rd. quarter of 1840, just due and realizable, about,..		Rs. 2,400	
In course of realization,		Rs. 6,024	

Read the following letter and list of land and fresh water shells for the East India Company's Museum, by Dr. J. T. Pearson.

To the Officiating Secretary to the Asiatic Society.

"Sir,—Having seen in the Journal of the Asiatic Society, an extract of a letter from Dr. Horsfield, in which he states that the Museum of the E. I. Company contains but few specimens of the Zoology of the continent of India; I have the honour to request you will obtain for me the favour of the Society transmitting to that gentleman, the accompanying fifty species of the land and fresh water shells of this country; to be presented on my part to the above mentioned Museum.

"I am induced to prefer this request, from the bad fortune which has hitherto attended my private efforts to send specimens to England; having had no news of not less than three consignments to the late Secretary to the Zoological Society, Mr. Bennett (in his private capacity, however,) to Mr. Swainson, and to Dr. Traill, from which circumstance I am induced to think they were not delivered.

"Accompanying the specimens is a list, with such remarks of their locality, &c., as I thought might be useful.

"As the specimens are for the most part fragile, you will oblige me by taking great care in handling them, should they be inspected by the Society. I must also add, in excuse for the few specimens of each species, that I lost a considerable portion of my collection; but hope to be able hereafter to forward a greater number.

"If the Society will allow me, I propose to forward through them, a series of specimens of the other branches of the Zoology of these mountains to the E. I. Company's Museum, as I have opportunity for collecting them. I have, &c. &c.

J. T. PEARSON.

List of land and fresh water shells for the E. I. Company's Museum, from Assistant Surgeon J. T. Pearson.—*Darjeeling,* 10*th April,* 1840.

1.—Unio bilinearis—Benson.—Found in a tank on the Esplanade of Fort William.

2.—Unio favidens—Benson.—Found in running streams, and common in most rivulets in India.

3.—Unio maigmalis.———Common in tanks of stagnant water, and less so in rivulets.

4.—Cyclostoma involvalus.—Soverly.—Common in the Rajhmahl hills, and at Midnapore.

5.—Cyclostoma involvalus.—Soverly.—Found at Cherra Poonjee, and in the Darjeeling district of the Himalya mountains. At Darjeeling it is of the smaller size, but lower down, at an elevation of not more than 2,500 to 4,000 feet, they are much larger—as large again as those sent; but I have not a good specimen of this large variety. Mr. Benson is of opinion this species is the same as No. 4.

6.—Cyclostoma ——— Found also at Darjeeling, but not very common.

7.—Pterocyclos hispidum peaugo.—From the Garrow Hills. I described this and the following shell in the Journal of the Asiatic Society for November 1833, under the name of *Spiraculum hispidum;* a generic name, which out of deference to Mr. Benson's authority as a conchologist (independent of his prior claim) I think it right to withdraw.

8.—Pterocyclos parvus.—Pearson.—Locality as the last species.

9.—Pterocyclos rupestris.—Benson.—Found in the Rajhmahl hills. The first species of the genus discovered by Mr. Benson.

10.—Helix ——— Found at Darjeeling. The only live specimen I have yet met with.

11.—Melania varialilis.—Benson.—Found in Tolly's Nullah, near Calcutta. It was also in the Sylhet and Cherra Poonjee collection, which I purchased jointly with the Asiatic Society

12.—Melania stephanus.—Benson.—In the above mentioned collection.

13.—Melania zonata.—Benson.—In the above collection.

14.—Melania coricca?—Gray.—ditto, ditto.

15.—Melania ——— Found in tanks and rivulets of Bengal.

16.—Melania ditto, ditto, ditto.

17.—Melania ditto, ditto, ditto.

18.—Melania ditto, ditto, ditto.

19.—Paludina bengalensis. ditto, ditto.

20.—Paludina crassa.—Inhabits the rivers &c. of India.

21.—Paludina pulchella.—From the Sylhet collection.

22.—Paludina ——— ditto, ditto, ditto.

23.—Lymnœa ——— I discovered this species in a tank on the road from Howrah to Bishop's College, near Calcutta.

24.—Lymnœa ——— Common in stagnant waters all over India.

25.—Planosbis indicus.—ditto, ditto, ditto.

26.—Vitrina gigus.———From the Sylhet collection.

27.—Helix ——— Bengal.

28.—Helix ——— From the Sylhet collection.

29.—Helix ——— ditto, ditto, ditto.

30.—Helix ditto, ditto, ditto.

31.—Helix ditto, ditto, ditto.

32.—Helix ditto, ditto, ditto.

33.—Neritina depressa.—Benson.—Found on the piles on the banks of the river Hoogly at Calcutta.

34.—Neritina tigrina.—Benson.—Locality as the last species.

35.—Neritina —— I am not sure that this species is described. I found it adhering to stones, at low water, in Tolly's Nullah.

36.—Assaminia fusicata?—Common on the banks of the Hoogly.

37.—Nematura ?—Found in the aqueduct leading from the Hoogly to the Course, Calcutta.

38.—Scarabus triangularis.—**Benson.**—On the banks of the Hoogly at Calcutta.

39.—Clausilia loxastonia.—**Benson.**

40.—Pupa————Found in advance in the sands on the banks of the Ganges near the mouth of the Goorutee, but I did not meet with a single live specimen. They appear to have been washed down and cast among the weeds, &c.

41.—Bulminus. ———— Found at Darjeeling.

42.—Achatinia. ———— Common in Bengal. I regret I have not a better specimen than the one sent.

43.—Navicella compressa.—**Benson.**—Found on the piles on the banks of the Hoogly near Calcutta I have but one specimen left, which will account for the injured state of that sent.

44.—Navecella tessellata.—**Lemarck.**—Locality as the last.

45.—Cerithissa sulcatum.—**Lemarck.**—Estuaries of the rivers of Bengal.

46.—Cerithissa ———— ditto, ditto, ditto.

47.—Cerithissa ———— ditto, ditto, ditto.

48.———— Found in the aqueduct mentioned under 37.

49.—Modiola ———— Found in Tolly's Nullah, adhering to stones, &c., by a string byssus. I think it a new and undescribed species.

50.————Found in the sands of the Ganges, &c. Besides the above, a bottle containing the shells with the animals of Cyclostoma incrolubus, Heritina depressa, and Tigrina and Pteroclos rupestris.

Read a letter from J. H. **Batten**, Esq. of the C. S. enclosing one from Captain **Huddlestone**, giving copies of an apparent inscription engraved on a Chobootra at Dewulghur in Ghurrawul, with a drawing of the Chobootra. Dewulghur is situated about 10 miles east from Sreenuggur, at some height above the valley of the Ulluknunder river, and possesses a rather handsome temple and establishment. Next to the showy shrines of Buddinath, Kedranath, &c. Dewulghur, is the chief religious establishment in Ghurrawul.

The character of this inscription, which is represented by Captain **Huddlestone** as extending throughout the whole of the Chobootra, and the carving is said to be exceedingly elaborate, appears to be a *Toghra* in the Sanscrit character, but none of the Pundits to whom it has been shewn, nor Mr. **Csoma de Korosi** have as yet succeeded in decyphering any portion of it. The character would appear to be unique, and should the specimen now furnished continue to baffle our attempts at its interpretations the Officiating Secretary proposes to publish a facsimile of it, and invite the attention of the readers of the Journal to a consideration of this curious variety of character.

Read a letter from Dr. **Chapman**, H. M's. 16th Lancers, on the subject of the reading to be adopted on the legend of the so-called Demetrius Mayes' Coins. The Officiating Secretary expressed his regret at not having been able to publish some very interesting speculations by Dr. **Chapman** on Bactrian numismatics, in consequence of his unfortunately not having it in his power to procure accurate and creditable lithographs of the casts of coins which accompanied that gentleman's paper. The same impediment had prevented him from publishing a collection of gems by the same contributor; but he trusted to be able very shortly to overcome this difficulty.

Read a letter from Captain T. S. Burt, of Engineers, of which the following is an extract:—

" On the third page I have the pleasure to send you some information which the Rev. Mr. Pratt has kindly favored me with; by noticing the existence of the pillar in your Journal, it may be discovered and an old character on it besides, for I should doubt any one having dug down to its base, buried as it is 21 feet below ground, notwithstanding what the Oriental Repository says on the subject. I brought to notice a pillar at Patna *with* some antique writing upon it in the March number of the Journal Vol. III. for 1834, but I cannot think it means this one. Sir Charles Wilkins found one some where in the neighbourhood of Patna also, and translated the inscription found upon it in, *I think*, the 1st Vol. A. R. but as well as I recollect, that was at Buddal not Singea.

" *Extract from Oriental Repository, Vol.* 2, 1808.

" The plate of an *ancient column near Singea in Bahar*, was obligingly communicated by Mr. Thomas Collinson. In the letter dated 15th February 1793, he says— This singular column is situated on the site of an obscure village in the neighbourhood of Singea in the province of Bahar, of which no traces whatever with respect to its establishment are to be derived either from oral tradition or the existing legends of former times; nor is there any inscription discoverable on any part of the column, though it has been carefully examined many feet below the surface of the earth.

" Note.—Some foolish travellers have cut their names upon it, but it is to be hoped this impertinence will be soon effaced from the column, and I would not let the copper plate be a record of their folly. The whole of the shaft is said to be one entire piece. It is of greyish stones or marble (?) The *lion* on the capital is of the same material, but what renders the subject still more extraordinary, is, that there is not a stone to be found within 150 miles of the spot, or such an animal as the one described within the circle of our dominions—consequently, but little known to the natives. The sculptural decorations bear no similitude to the works either of the Hindoo, or Musulman artists.

" *Dimensions.*	ft.	in.
Shaft, an entire stone,	44	0
Ditto sunk,	21	0
Ditto above ground,	23	0
Diameter at ground,	4	1
Ditto under capital,	3	5
Height of capital without the lion,	3	0
Table on which the lion sits,	0	10
Ditto long,	4	6
Ditto broad,	3	10
Height of lion from paw to ear,	5	4

" Lion and Capital one stone,

(" 1792. Signed) D. C."

It was suggested that early occasion should be taken to invite research upon the interesting subject mentioned by Captain Burt.

Read a letter from Dr. H. Falconer, with impressions of gems from Affghanistan.

Read a letter from J. Avdall, Esq. forwarding a Memoir of Mechitharghosh, the Armenian Legislator for the Journal of the Asiatic Society.

Read a letter from Captain T. P. CAUTLEY, forwarding a Memorandum on the Fossil Camelidæ of the Sewalik range. This paper was published in No. 102 of the Journal.

Read a letter from Captain F. MACGRATH, Commanding the Arracan Local Battalion to the address of the Secretary, apprizing him of his having dispatched to his address, to be disposed of as would appear most expedient, a fine specimen of that rare and curious animal, the Sand Hog of Arracan. This animal was taken in the hills above the Koladyne river (vide Dr EVANS' Memoir Asiatic Society's Journal, August, 1838, No. 80.) Captain MACGRATH, gives the following account of the local name of the animal, and the habits of this specimen now supplied by him—

" The Mugs call this animal Quado Waitdoo, this interpreted signifies an animal between a pig and a dog, or more literally partaking of the character of both. I got this creature about two months since, when he had not a tooth, and was fed on milk with cotton; as he grew up he took to eating cooked fish and even meat, also getting under the Bungalow and groping for worms and insects. He used to run about the house quite tame, and has never been confined day or night; his courage is great, and indeed if it is not guarded against, he will be meeting his death in consequence, for he will attack a dog, who with one gripe would destroy him; in fact he has no fear."

The Officiating Secretary informed the Meeting that he had taken upon himself to present the animal to the Menagerie at Barrackpore in the name of the Society, to whom he considered it had been virtually presented by Captain MACGRATH, and he had great satisfaction in stating that the animal had thrived exceedingly well where he was now placed, and that there was every reason to anticipate his attaining his full growth without accident.

It was proposed by the Honorable W. W. BIRD, and seconded by Dr. WALLICH, when the subject of the choice of a permanent Curator was agitated, that Mr. BLYTH, in whose favor Professor WILSON had furnished Sir E. RYAN with the highest testimonials, should be invited to this country for the purpose of assuming the permanent duties of the Office, and that in the mean time arrangements should be made for securing efficient supervision over the affairs of the Museum, by employment of a gentleman of due qualifications, whose services might be now available in Calcutta. In pursuance of this determination, arrangements were made subsequently to the Meeting by which the services of Mr. H. PIDDINGTON were secured as temporarily in charge of the Curatorship.

It was proposed by Sir E. RYAN, that a Standard Barometer among the collection of Instruments belonging to the late Mr. JAMES Prinsep, his Cabinet of Minerals, his Comparative Barometer, and instrument for effecting correction of atmospheric changes, should be proposed to Government as proper to be purchased for the general purposes of science, and placed in the Society's Rooms for general reference by the public, and the Officiating Secretary was directed to address Government on the subject accordingly.

For the above presentations and contributions the thanks of the Society were accorded.

JOURNAL

OF THE

ASIATIC SOCIETY.

Points in the History of the Greek, and Indo-Scythian Kings in Bactria, Cabul, and India, as illustrated by decyphering the ancient legends on their coins. By CHRISTIAN LASSEN, *Bonn,* 1838.[1]

Here we must try to supply Strabo's brevity by other accounts. I ascribe to Menandros the subduing of Pattalene and Syrastrene. Strabo makes no mention of these districts as conquests of Menandros beyond those of Alexander's expedition, because Alexander had advanced to Pattalene, therefore in this direction to the sea-coast. This interpretation is proved probable by the well known passage in the Periplus,* according to which, coins of Menandros and Apollodotos were still in use during the Roman era in Barygaza. To Demetrius we must assign the conquest of Ariana, viz. the country of the Paropamisades and Arachosia; this is the opinion already formed by Bayer,† on the authority of Isidor of Charax, who mentions among the towns of Arachosia, Φάρσαγα πόλις, καὶ Δημητριὰς πόλις, εἶτα Ἀλεξανδρόπολις, μητρόπολις Ἀραχωσίας, ἔστι δ' Ἑλληνίς. This (town of Demetrius) was probably built by him. But when Bayer thinks Demetrius also founded a town on the borders of the Hydaspes, because Ptolemy says of Σάγαλα ἡ καὶ Εὐθυμηδία

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[1] Continued from p. 676. vol ix.

* p. 17. Huds.

† p. 84.

(ed-μεδία) the clue is fallacious. We shall not indeed reject the excellent conjecture, that Εὐθυδημία is to be read, and that the town was named after Euthydemos, but why should no one except Demetrius so name a town?

If our remarks above made to the effect, that the Greeks in Bactria previously to the year 200 B. C., possessed no territory whatever to the south of the Indian Caucasus be correct, the following arrangement of our known facts suggests itself. When Euthydemos was relieved from the attacks of Antiochos, he made an invasion, either in person or through his son, Demetrios, of the countries to the south of the Caucasus; here he must have first encountered the Paropamisades. Arachosia bounds on them on the westward, and from thence Demetrios most probably endeavoured to reconquer his paternal inheritance. That here was the main site of his power, is confirmed by the name of the town, Demetrias, and this likewise explains why we have but so few coins of his; they must be looked for in Candahar.

His dominion in western Cabulistan and Arachosia sufficiently explains the title, "King of the Indians." Demetrios, however, pretends, by the adoption of elephants as trophies, to victories over India Proper, and we have no ground for denying his right to them.

It is true, those victories would prove hardly probable, if Menandros were his cotemporary, as Mr. Mueller thinks.* But he takes Strabo's words in a too literal sense, while they, as the passage plainly shows, are intended only as general expressions. The coins at least afford no proof that both were cotemporaries.†

The chronological tables to be obtained for the history of Bactria, can only result from a comparison of all the passages relative to this inquiry.

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* p. 209.

† I drew no conclusion for my assertion from the non-existence of the Cabulian letters on the coins of Demetrios, as this may be accounted for by his governing countries more to the westward, where the use of those letters was not so common as in Cabul. It is, however, the most probable supposition that he did not use Cabulian letters, because his successors had the first idea of adopting them (on their coins.)

The principal passage on Eukratides is the following, Justin XLI. 6. "Eodem ferme tempore, sicuti in Parthis Mithridates, ita in Bactris Eucratides, magni uterque viri, regna ineunt. Sed Parthorum fortuna felicior ad summum hoc duce imperii fastigium eos perduxit. Bactriani autem, per varia bella jactati, non regnum tantum, verum etiam libertatem amiserunt; siquidem Sogdianorum, et Arachotorum, et Drangianorum Indorumque bellis fatigati, ad postremum ab invalidioribus Parthis, veluti exsangues, oppressi sunt. Multa tamen Eucratides bella magna virtute gessit, quibus attritus, quum obsidionem Demetrii regis Indorum pateretur, cum trecentis militibus sexaginta millia hostium assiduis eruptionibus vicit. Quinto itaque mense liberatus, Indiam in potestatem redegit. Unde quum se reciperet, a filio, quem socium regni fecerat, in itinere interficitur, qui non dissimulato parricidio, velut hostem, non patrem, interfecisset, et per sanguinem ejus currum egit, et corpus abjici insepultum jussit."

First we remark on this passage, that the whole does not refer to Eukratides, namely not that part in which the reasons for the decline and the downfall of the Bactrian empire are enumerated. Throughout the whole passage one idea pervades, viz. that the fate of both empires, the Parthian and the Bactrian, was identical in the simultaneous accession to power of two great monarchs, but opposite in the simultaneous progress of one, to the highest pitch of power; of the other, to total destruction. Under the impression of this leading idea, the author suddenly turns to relate the circumstances which weakened and eventually ruined the empire of Bactria, namely, the wars with the neighbouring nations; this is an important notice, as involving a fact hitherto entirely overlooked, which is, that the detached kingdoms of Drangiana, Arachosia, and India, existed cotemporaneously together with that of Bactria. But it does not follow, that all the wars Eukratides was engaged in, must be the very same, which the Bactrians waged with the Drangians, Arachosians, and Indians, or, in other words, it is not necessary, that the three nations, now mentioned, must have formed independent states before Eukratides, as they may also have become independent after his murder. Moreover, if we may be allowed to follow a clue not wholly authentic, these kingdoms must have originated after Demetrius; for supposing Demetrius king of Arachosia, and that he was here called king of the Indians also, Justin could not separate Arachosia from India in speaking of a time when both countries still obeyed Demetrius. I therefore suspect, that immediately after the overthrow of this king, Eukratides took possession of Demetrios' Indian dominions, while Arachosia and Drangiana, likewise subject to Demetrios, became independent states under their own Satraps. On this supposition the wars by which Bactria was so much disorganized as to fall an easy prey to the Parthians, would have been carried on by the son of Eukratides against the attacks of the united Drangians, Arachosians, Indians, and Sogdians.

Under this view the aspect of Bactrian history is so much changed, that I shall directly mention some facts corroborative of the above.

First. We know, that Eukratides after having conquered Demetrios, turned[*] his arms against the Indus and Hydaspes, probably therefore, against countries belonging either to Demetrios himself, or to a king allied to him.

Secondly. Two kings laid claim to having reigned immediately after Eukratides, though not in Bactria itself, viz. Antialkides in western Cabul, and Antimachos in Drangiana; this latter on the authority of the coins, which point to a victory at sea.

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[*] Strabo XV. § 3. Ἀπολλόδωρος γοῦν ὁ τὰ Παρθικὰ ποιήσας, μεμνημένος καὶ τῶν τὴν Βακτριανὴν ἀποστησάντων Ἑλλήνων παρὰ τῶν Συριακῶν βασιλέων τῶν ἀπὸ Σελεύκου τοῦ Νικάτορος, φησὶ μὲν αὐτοὺς αὐξηθέντας ἐπιθέσθαι καὶ τῇ Ινδικῇ, οὐδὲν δὲ προσανακαλύπτει τῶν πρότερον ἐγνωσμένων, ἀλλὰ καὶ ἐναντιολογεῖ, πλείω τῆς 'Ινδικῆς, ἐκείνους, ἢ Μακεδόνας, καταστρέψαςθαι λέγων. Ἐυκρατίδαν γοῦν πόλεις χιλίας ὑφ' ἑαυτῷ ἔχειν, ἐκείνους δ' αὐτὰ τὰμ εταξὺ ἔθνη τοῦτε Ὑδάσπου καὶ τοῦ Ὑπάνιος, τὸν ἀριθμὸν ἐννέα, πόλεις τεὲ σχεῖν πεντακιςχιλίας, κ. τ. λ. This cannot be but a contradiction of Apollodoros himself. Groskurd's Erdbeschr. Strabo III. 109.

In these countries this could have only taken place on the great lake of the Drangians. Both kings first assume the title *νικηφόρος*, and are founders of empires by successful wars; chronology therefore admitting, (on this hereafter,) we may justly attribute to Antimachos the foundation of the Drangian, and to Antialkides that of the Arachosio-Cabulian empires; the foundation of the Indian empire must then belong to a third king.

If there were only one Eukratides, the coins with Cabulian legends, and the title of great king, must be ascribed to the fortunate, though short, epoch of his life, when his reign extended to the Hydaspes. I say short, because he fell by the hand of his son at the very moment of his return. If there were two Eukratides, those coins belong to the second.

We have before this, doubted the existence of Eukratides II, as far as it was inferred from the coins. We have now to examine the passages of authors adduced in his favour. According to Bayer's assertion, Eukratides is spoken of in a way unsuited to the victorious king of this name; he thinks, that the son had put to death his father, because he protected the Parthians, who assisted him against Demetrius. But all that we learn concerning the relations of both empires, never shows a friendly, but on the contrary an entirely hostile intercourse. We will not lose our time in conjectures as to the motives of that crime.

The passages which are said to afford the argument mentioned, are the following:—Strabo XI, 9, 2. *ἀφείλοντο* (the Parthians) *δὲ καὶ τῆς Βακτριανῆς μέρος βιασάμενοι τοὺς Σκύθας, καὶ ἔτι πρότερον τοὺς περὶ Εὐκρατίδαν.*

This passage must be explained by the statement, above mentioned, that the Parthians had deprived Eukratides of two of the Bactrian Satrapies, Turiva and the Aspiones; they afterwards took from the Scythians either this or another northern part of the Bactrian empire; they took it therefore from the very same Scythians, who under Euthydemos already threatened an irruption into Bactria, and who must afterwards have found an opportunity of invading this country. Why might not Mithridates VI. have availed himself of the siege of Eukratides by Demetrios, in order to subdue the Turanian Satrapies? Beyond this passage there is no mention whatever of Eukratides, and we are evidently not necessitated to adopt two kings of this name.

It remains to ascertain the mode of the downfall of the Bactrian empire. It is ordinarily ascribed to the Scythians, according to Prolog. Trog. Pom. XLI. "Deinde quo repugnante Scythæ gentes Sarancæ, et Asiani Bactra occupavere, et Sogdianos." But it is not borne in mind, that while Mithridates reigned in Parthia, the Scythians had not power sufficient to enable them to advance southwards; under Arsakes VII. indeed, or Phrahates II, who was killed by the Scythians, this conquest of Bactria by them may have occurred, whether Arsaces himself or another Greek king, who re-established himself in Bactria, be understood under the term of the epitomator: "*quo repugnante.*" I say *who re-established himself*, as it is certain, that Mithridates the Great, had before taken possession of the Bactrian empire, and governed it till his death. "Bactriani, per varia bella jactati, non regnum tantum, verum etiam libertatem amiserunt, siquidem—ad postremum ab invalidioribus Parthis, veluti exangues, oppressi sunt". The term "*weaker,*" refers to the remark Justin had previously made, that the Parthians were in the beginning of their power much *weaker* than the Bactrians. Mithridates therefore is the real subverter of the Bactrian empire.

There exist some passages on the conquests of Mithridates towards Bactria and India, but they require a critical examination.

According to Diodorus,* who perhaps imagined that king to have taken possession of the Indian dominion of Eukratides, he conquered the empire of Porus. Independently of the little authority of Diodorus, Porus was considered since Alexander's time as a mere representative of Indian sovereignty, generally speaking, and it must depend upon other passages, whether those words mean any more, than that Mithridates extended his power in that direction. Of much less weight is Orosius, a still later authority; (V. 4) "Omnes præterea gentes, quæ inter Hydaspem fluvium, et Indum jacent, subegit Mithridates, ad Indiam quoque cruentum extendit imperium." Orosius was possessed of a laudable piety, of no great understanding, and rather of a passion for rhetorical flourishes, than of any desire to attempt critical exactness. What were the many nations between the Hydaspes and the Indus, and what were they in comparison to the great empires Mithridates possessed? The only exact authority, that of Trogus, certifies merely that Mithridates' dominion extended to the Indian Caucasus. Justin XLI. 6. "Imperiumque Parthorum a monte Caucaso, multis populis in ditionem redactis, usque flumen Euphratem protulit."*

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* Fragm. ed. Bip. X. p. 91. ὁ Ἀρσάκης ὁ βασιλεὺς τὴν βασιλείαν ἐπὶ πλεῖον ηὔξησε. μέχρι γὰρ τῆς Ινδικῆς διατείνας, τῆς ὑπὸ τοῦ Πώρου γενομένης χώρας ἐκυρίευσεν ἀκινδύνως.

If Mithridates had reigned to the south of the Hindookoosh, coins of him would also have been discovered in the rich mine at Beghram, moreover the continuance of the Grecian empires in Cabul and about the Indus, discourages this opinion.

We have above attributed to the Parthians the overthrow of the Greco-Bactrian empire; the time of this event may be determined with tolerable exactness; Justin XXXVI. I, says of Demetrios Nicator. "Bellum Parthis inferre statuit, cujus adventum non inviti Orientis populi videre, et propter Arsacidæ regis Parthorum crudelitatem, et quod veteri Macedonum imperio assueti, novi populi superbiam indigne ferebant. Itaque quum et Persarum, et Elymaeorum, Bactrianorumque, auxiliis juvaretur, multis proeliis Parthos fudit. Ad postremum tamen, pacis simulatione deceptus, capitur, etc." This captivity happened during the year 140 B. C. and as Mithridates died only a few years after this event, and as to him is expressly ascribed the conquest of Bactria, this must have occurred about the year 139 B. C. In the foregoing passage, Bactria appears then, for the last time, as an independent empire in alliance to the Seleucides against Parthia, whether it were under a son of Eukratides, or a successor of this king. As Elymais and Persis alone are mentioned, and not Drangiana and Arachosia, the inference may be admitted, that the two latter empires were already occupied by the Parthians.*

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* The same is stated in an account, which, though of a later date, is derived from good authority. Acct. Sancct. ad XXX. Sept. vol. VIII. 3 20. Πάρθοι ἐν εὐτυχίᾳ μεγίστῃ ὄντες καὶ κρατοῦντες τῆς τῶν Περσῶν βασιλείας καὶ Ἀρμενίων καὶ Ἰνδῶν τῶν γειτνιαζόντων τοῖς ἑῴοις Πέρσαις, ἔτι δὲ τῶν σκληροτάτων Μασσαγετῶν.

One datum only for the more early Bactrian history, may still be derived from extant authors, the accession of Eukratides.

According to Justin, Eukratides ascended the throne at the same time with Arsaces VI.; but the statements and opinions on this very point are unfortunately very uncertain. Bayer upon his investigations places the commencement of the reign of both about 181 B. C.

According to Visconti, Mithridates' accession occurred 165 B. C. (Bayer p. 86, Visc. Iconogr. III. 70) Here are indeed to be found reasons for the probability only of the fact, and they apparently are in Bayer's favour. We perhaps fall into the less error of the two by adopting the medium between both dates, 175 B. C.† The first expeditions against India under Euthydemos, his death, the foundation of an independent kingdom by his son Demetrios, the expulsion of the Euthydemides from Bactria, either by Eukratides, or by a predecessor of his, all those events must be assigned to the years 200

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* Bayer (p. 90) has thoroughly reviewed a difficult passage of Orosius referring to this place.

† Mithridates' accession must not be placed too far down, as he died at an advanced age "gloriosa senectute," and it is likely ascended the throne early. Another reason for the determination of the foregoing date, is that the war of Demetrios with Eukratides, must not be fixed at too late a time. The former, was at the conclusion of a peace between his father and Antiochus, a youth, about 20 years old. If he now fought in the 55th year of his age with Eukratides for the possession of Bactria, this war happened 30 years after, 200 B. C. or 170. If our conjecture were correct, that Antimachos could only have acquired his empire in Drangiana and in its neighbourhood after the overthrow of Demetrios, this would be another confirmatory reason. It is not necessary to bring him in direct parallel with Antiochus IV.; yet the commencement of his reign cannot be traced to a later period than 164, but rather to an earlier one; M. R. R. adopted the year 170.

—175 B. C. Between 175—140, according to our foregoing review of the facts, occurred the overthrow of Demetrios, the murder of Eukratides, and the reign of his son, or of his successors. All is here uncertain, save that the reign of Eukratides must not be extended too far, as he fell in the midst of his victorious career, and appears to have made only one campaign in India.*

§ 16.

The Scythians in Bactria.

Euthydemos mentioned to Antiochos as a reason for not overweakening his power, that in this case he would not be able to repel the northern barbarians, and that Antiochos' own provinces would run the risk of being inundated by the invading current of the barbarian hordes. (Polyb. XI, 34.)

The Bactrian kings had in their palmy days possession of the country of the Scythians in two directions; to the east, beyond the Mustag, the provinces of the Phrunians and Seres, and on the north towards the Caspian the Satrapies of Turan, and another named after Aspiones. Mithridates had taken the latter, probably when Eukratides fought with Demetrios.

Among the nations in warring with which the Parthian empire became exhausted, the Sogdians are mentioned; they can hardly be Sogdians properly speaking, but rather the Saces, who had invaded Sogdiana; Strabo represents them as of that nation, when he says on the occasion of the great irruption of the Scythians, that they had started from the country beyond the Jaxartes, "*τῆς κατὰ Σάκας καὶ Σογδιανοὺς, ἣν κατεῖχον Σάκαι.*"

They are probably the same Saces from whom Mithridates took away a part of Bactria† occupied by them, and who already so early as the days of Herodotus (VII. 64) bordered on Sogdiana, and whose name was given to all nomad tribes and people of equestrian habits in Turan. They appear the foremost in the series of invading hordes.

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* There will be found a great difference between my numbers and those given by Mr. Mueller (at o. p. 218.) This is no place for a critical comparison of both statements; I beg only to remark, that the reign of 20 years (160-40) Mr. Mueller assigns to Eukratides in India, is as improbable as the reign of 40 years, generally ascribed to him.

† XI, Scyth. § 2.

The great inroad of these nations is noticed in two passages. Prolog. Trog. Pompei XLI. "Deinde quo repugnante Scythiæ gentes Sarancæ et Asiani Bactra occupavere, et Sogdianos." Strabo XI. § 2. "Μάλιστα δὲ γνώριμοι γεγόνασι τῶν νομάδων οἱ τοὺς Ἕλληνας ἀφελόμενοι τὴν Βακτριανὴν, Ἄσιοι, καὶ Πασιανοὶ, καὶ Τόχαροι, καὶ Σακάραυλοι, καὶ ὁρμηθέντες ἀπὸ τῆς περαίας τοῦ Ἰαξάρτου, τῆς κατὰ Σάκας καὶ Σογδιανοὺς, ἣν κατεῖχον Σάκαι."*

If I now maintain, notwithstanding this latter passage, that it was not these Scythians, but the Parthians, who destroyed the Grecian empire in Bactria, the reasons are quite evident. The Scythians could not conquer it during the reign of Mithridates, and when they took possession of Bactria, the country was no longer under the dominion of the Greeks, but of the Parthians, as the irruption of the Scythians happened at the death of Phrahates, about 126 B. C.

Of the four nations mentioned by Strabo, we know nothing of the Pasians; the Sakaraules seem to have been a separated tribe of the Saces; the Tochares received their kings out of the nation of the Asianes. (Trog. Pomp-prolog. XLII. "Additae res Scythicæ, Reges Thocharorum Asiani, interitusque Sarducharum.)"

We have then more particularly to deal with two nations, with the Saces and Tochares.

The gradual progress of these nomads over eastern Iran, can be traced in the Parthian history; having been taken into pay by Phrahates against Antiochus of Sida, they arrived too late. As now they received no compensation whatever, and they were led against no foe, they commenced plundering the Parthian provinces, and Phrahates fell in a battle against them, 126 B. C. (Justin XLII. 1.) This year is the real date of the Scythian inroad. The next king of the Parthians, Artaban, II. (Arsaces VIII) we find again engaged with the Tochares, and dying of a wound received in this war.* His son Mithridates fought again, and with more success, against the Scythians. Under his reign commenced the struggle of the Parthians against Rome, and supposing the Scythians up to that time able to maintain themselves in Bactria and Sogdiana, they were then doubtless at full liberty to assume unrestrained dominion. Nor do we find, that the Parthians attacked them any more. Sanatroikés, 77 B. C., is placed on the throne by the Scythians, viz. the Sakaraules; as was the case with Phrahates IV. when expelled by his subjects, in the year 37 B. C. †

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* The following words καὶ τῶν Δαῶν κ. τ. λ. does evidently not further refer to this subject.

Ancient writers do not give us the whole detail of the Scythian settlement in Bactria, nor do we know the name of any of their kings, any more than the manner in which they divided among themselves the conquered provinces. Only one notice which is in fact important, has been preserved; Isidor of Charax, says, (p. 9) Ἐντεῦθεν Σακαστανὴ Σάκων Σκυθῶν, ἡ καὶ Πραιτακήνη.

We observe, as the Saces were the foremost of those nomades, so did they advance farthest to the south and west; they had occupied the Drangian Praitakene, while the Tochares, under the Asianian kings, settled themselves perhaps nearer to the eastern and northern frontier.‡

We must not here neglect receiving such illustrations as we are offered by Chinese authorities on the emigration of these Scythians, although the author of this treatise could not directly compare those authorities, and is aware of the confusion caused by Chinese misconstruction of names. But these accounts however afford the great advantage of having originated with a nation, which had entered upon various relations with those Scythians, and was informed by embassies of their circumstances.*

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* I. C. XLII. 2. As the Thochares are distinguished from the Scythians, these latter appear to be the Sakaraules. Scythæ, depopulata Parthia, in patriam revertuntur. Sed Artabanus bello Thogariis (sic) illato, etc.

† I. C. XLII. 5. Appian. Mithrid. 104.

‡ A Median Paraitakene was between Persepolis and Ecbatana, Arrian. Anab. III, 19. Ptolm. VI, 4. Diodor. XIX. 34. Strabo XVI, init. Beside this a Sogdian town of the same name, Arrian IV, 21, which was also named Gabaza and Babakene. Curtius VIII, 14, 17. Zmpt. eastwards of Karatag towards the lofty Belurtag. Thirdly, that above mentioned between Drangiana, Cabul, and Arachosia. Ptolemy calls it Tatakene, perhaps country of the Tatas? VI, 19. In Paraitakene lies the old Persian *Paruta*, *hill*, these hills are the Kohistan of modern Persian geography.

These accounts however require a critical examination in various points, and even here, though only limiting myself to the most remarkable facts, I cannot quite omit this task.

The Yuetchi, a nomad tribe of inner Asia first appear in the upper Hoangho, whence they are repelled by the growing power of the Hioungnus; one sept called *the little,* turn southwards to Tibet; the larger division bearing the name of *the great,* set out farther westwards to the countries beyond the Jaxartes; this event happened in the first half of the second century before our era.† This division originally consisted of five hordes.

In the country recently occupied by them, they fall in with the people of an earlier emigration, called the *Szus, Sais, Ses,* also nomades under some petty chiefs. This tribe is forced to retire further west, and as the Yuetchis conquered new pastures on the borders of the Ili, the Szus must have been removed to the Jaxartes. In these *Szus* the Saces have been long ago recognized; this corresponds with the fact, that the Saces had already, before the destruction of the Parthian empire, taken possession of a part of Sogdiana. This era likewise agrees with the fact above mentioned, that the Sogdians had contributed their share in weakening the power of the Bactrian empire; this event must therefore have happened in the latter days of Eukratides, or in the time of his successor, posterior to 160 B. C.

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* The most important facts are already put together by De Guignes: "Sur quelques événements qui concernent l'histoire des Rois Grecs de la Bactriane et particulièrement la destruction de leur Royaume par les Scythes, etc" in Mémoires de l'Academie Royale des inscriptions et belles lettres. Tome XXV. II. p. 17. Abel Rémusat has supplied information of this kind in some writings, viz. in the "Récherches Tartares," in his "Mélanges," in his "notes to Foĕ Koue Ki". Klaproth in the "Tableaux Historiques de l'Asie." It is true, great mistakes have been pointed out in the work of De Guignes with respect to his interpretation of Chinese names; but he is not prepossessed, as his successors are, by the monomania of recognising in the Chinese accounts German tribes in inner Asia, as Goths, Getes, Jutes, Juetes, Jits, and Jats. The reading *Yueti* instead *Yuetchi,* originates in this visionary idea, and the Russian Sinolog, father Hyacinth, who was not acquainted with this beautiful discovery, quietly continued writing *Yuetchi.*

† De Guignes, p. 21. Klaproth, p. 57. p. 132. Rémusat to Foĕ K. p. 83. The year 163 B. C. is mentioned.

The Yuetchis remained not long in the possession of their new country; another nation, the *Ousun*, flying from the *Hioungnus*, deprived them of those districts; the Yuetchis ejecting the *Szus*, occupied the provinces possessed by them; the *Szus*, pushed to the south, find an opportunity of taking possession of the country *Kipin;* the Yuetchis, following in their wake, take the country of the *Tahia*.* A Chinese general, *Tchamkiao*, accompanied this expedition of the Yuetchis, and the well ascertained event occurred immediately previous to the year 126 B. C.

This is the very year in which Phrahates was killed by the Scythians; the Yuetchis and the Szus flying from them, are therefore the Tochares and Saces of western writers, whom Phrahates is reported to have taken into pay. These mercenaries were perhaps at first the Szus, and we indeed find Artaban opposed to the Tochares. Whether the Szus were driven into Bactria, according to the Chinese account, or called into that country as according to Justin, both statements may be right as regards their immediate narrative. Phrahates wished to avail himself of the Scythians, pressed into his neighbourhood, to strengthen his army. While Mithridates, "ultor injuriæ parentum," arrested for some time, it appears, the progress of those Scythians.

The Yuetchis divided the conquered districts according to the number of their hordes, into five parts; they had the country of the *Asi*, or *Ansi*, whom De Guignes reads *Gansi*, as their western frontier; it is as appears probable correctly interpreted as the country of the Parthians.†

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* De Guignes, p. 22. p. 23. Kl. p. 133. Rém. p. 83.

† Rém. p. 83. De Guign. p. 23. Kl. p. 133.

Turning to the Szus who had conquered Kipin, we have already defined generally the situation of this country, which will become still clearer from the reports on the Szus. (De Guign. p. 29.) The country Kaofu, it is said, is very extensive; the inhabitants resemble the Indians in manners, and character, being rather mercantile, than warlike. Previous to their latter subjection under the Yuetchis, one part belonged to the Indian kings, another to the Ansi (Parthians); a third to the kings of Kipin (viz. the Szu-sovereigns of his account). Hence it clearly appears, that Kipin is the country in the west of Cabul below the Kohi Baba to the westward. Combining with this, the statement that Sakastane received its name from the Saces, we find, that the Kipin of the Chinese is the country of the western Paropamisus, the pastures of which are moreover occupied by a Mongolian tribe of nomades, the Hezarehs.* "Kipin" however is a political not a geographical term, and may on occasion also embrace portions of Cabul, Arachosia, and Drangiana.

What the Chinese mention of the productions of art in this country, as silks, gold, and silver vessels, refers of course to the dexterity of the subjugated inhabitants, or those articles were imported by trade. A notice of much importance, is the following, that they struck gold and silver coins; on the obverse the effigy of a horseman, on the reverse, of a man.†

As the Chinese had commercial intercourse with the empire Kipin, the names of some kings are mentioned. During the reign of the emperor Woo-ti, (died 87 B. C.) *Utolao (*or *Ontheoulao)* reigned in Kipin. His son was killed by a certain *Inmoffu,* who usurped the throne 30 B. C. Kipin is still spoken of at a much later time, but it is not noticed, whether it continued under its kings from the people of the Szus; this is, however, improbable, as it is stated, that the Yuetchis took afterwards possession of this country likewise.*

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* To this passage refers the misplaced and apparently absurd remark with Steph. De urb. 5. v. Ἀραχωσία, πόλις οὐκ ἄπωθεν Μασσαγετῶν. How comes Arachosia to the country of the Scythes? However, the Scythes are meant possessing Kipin.

† De Guign. p. 25. He knew of the Eukratides' coins only those with the type of the Dioscuri, and referred this notice to them.

Now leaving the Szus for the present, we will recur to them, when in the progress of our research we have to consider the countries south of the Caucasus.

The Ansi, having their abode to the west of the Yuetchis, were a powerful nation with many towns; they had gold and silver coins, bearing on the obverse the image of the king, on the reverse a male figure. When a king died, his successor struck new coins. The Ansi wrote on hides, in horizontal lines (not in vertical, as the Chinese), carried on an extensive trade, and had conquered many countries.† De Guignes justly compares the constant type of the more ancient coins of the Arsacides with the portrait of the king, and the reverse of a Parthian bending a bow.

But how to explain the fact, that the Chinese term the same people Yuetchis, while the Greeks call them Tochares. Who are the Tahias? who the Ousuns? De Guignes, with whom I agree, holds the latter as the Asiani; they may have given kings to the Yuetchis, in the same manner as so many Turkish hordes stood afterwards under the dominion of the successors of Gengis Khan. The Tahias are taken for the Dahes, the Δααὶ, and the Yuetchis on their irruption into Sogdiana must have indeed met with tribes of this people.‡ When it is said, however, that the Yuetchis conquered all the countries of the Tahias, the Dahes had either spread themselves over Bactria to the southward, or the name of the country first conquered was transferred to those afterwards subjugated.

The name Tochares afterwards occurs with the Chinese under the form *Thukolo*, as they could not otherwise express it.§ We still recognize Tocharestan, which has received the name from them. But it need not be the same people; the Tochares of our time are Turks; for I think I may venture the conjecture, that this name in the Perso-Indian languages denoted the inhabitants of the cold snowy table land of the Belurtag; this nation may therefore have had the name of Yuetchis, or a similar one, and yet have been called Tochares, by the Bactrians, as they arrived from those snowy districts.*

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* De Guign. p. 27. Hyacinth in Ritter's " Erdkunde" VII. 682. etc.

† De Guign. p. 28.

‡ According to Strabo XI. Scyth. § 2. Καὶ τῶν Δαῶν οἱ μὲν προσαγορεύονται Ἄπαρνοι, οἱ δὲ. Ξάνθιοι, οἱ δὲ, Πίσσουροι.

§ Neumann. Asiat. Studien. I, 179.

Following the farther fate of the Yuetchis in Bactria, there afterwards appears a king named *Khieout-Sieouhi,* who uniting the other hordes, makes war on the Parthians, takes Kaofu from them, then also conquers Kipin, and Hantha; but he more likely took Kipin and Kaofu from the Szus. Klaproth places this event in the year 80 B. C.; Rémusat in the first century of our era; De Guignes 100 years after their first settlement in Bactria, therefore 26 years B. C.; so likewise does an anonymous translation of Chinese history.† The Chinese accounts certainly correspond, and we owe this pleasing incertitude only to our European chronicles. We hope to be excused ascribing the greatest negligence to our countryman, Klaproth. But we must continue; Khieout-Sieouhi is said to have died aged 80 years. His son *Yenkaotching* (the commencement of whose reign, would therefore have been about 30 A. D.) conquered India, advancing far to the south and to the east. The Yuetchis having become powerful, waged a war even against the Chinese under their governor *Pantchao,* in the westerly tributary provinces of China; this was carried on in Khoten, in the year 98 A. D., and gave occasion for the discovery of the Caspian Sea.* Yenkaotching is however not said to have made this war, and it is very improbable, that he did so, as it occurred between the years 75-98.

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* *Tushara,* and with the pronunciation *kh* for *sh, tukhara,* denotes in Sanscrit *snow, ice, frost,* and so is named in the old Indian geography a people in the north of the Hindookush. A king of Kashmir, of the family of the Thuholos, 600 years after Buddha, (therefore 56 A. D.) is mentioned by the Chinese Buddhists; this was long before the Chinese knew Thuholo, and a proof, that the Yuetchis, to whom this king must have belonged, were named *Tukhara* in India. The Yuetchis however, or a neighbouring people of them in India, are also called *Turushka,* since Kanishka is said to have belonged to this nation, 500 years after Buddha.

† De Guign. p. 27, who read Tata instead of Hantha, Klaproth. p. 133, has Pouta; Rém. p. 83. Hantha. As. Trans. VI. p. 63. "the Chinese general Chang-keen (Tcham-kao) was sent as ambassador to the Yuetchi by the emperor Woote (B. C. 126.) And about a 100 years after, a prince of this nation subjected the Getes in Kophene (Szu in Kipin) and India was again subjugated by the Yuetchis."

The greatest power of the Yuetchis obtained therefore in the first century of our era. The father, Khieoutsieouhi, had engaged in hostilities with the Parthians; if this were the same in which Prahates IV. expelled Tiridates by the assistance of the Scythians (Justin XLII. 5,) it commenced about the year 40 B. C., and his son would be more correctly placed in the years beginning from 20 or 25 A. D.†

The power of the Yuetchis continued to the third century.‡ After this time it was weakened by new hordes of northern barbarians. Still however their empire maintained itself; and Chinese history in the beginning of the fifth century makes mention of a king *Kitolo*, who again undertook an expedition against India. India appears therefore meanwhile to have been taken from the Yuetchis. Kitolo is said to have conquered Balkh, Gandhara, and five other provinces. According to others, Kitolo's son founded the empire of "The Little Yuetchis" in *Foeleoucha;* here is some confusion, at least in the translations.§

Let us now sum up these facts. First, we have an empire, founded in Kipin by the Saces, commencing about the year 126 B. C. This may have maintained itself till the Yuetchis advanced southward, therefore almost to the beginning of our era. It embraced a part of Cabul, and we must hereafter examine, whether their kings did not also reign on the borders of the Indus.

Secondly, an empire of "The Great Yuetchis," or Tochares, in Bactria and Sogdiana, divided into separated hordes, to the year 40 B. C., and limited to the north of the Caucasus, thence conquering to the south of the mountains, Kipin, Kandahar, Cabul, including a large portion of India. The subversion of this empire coincides with the accession of the Sassanians.

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* De Guignes, p. 30. Rémusat, Remarques sur l'extension de l'empire Chinois, p. 120. Mr. Ritter, Erdkunde VII, p. 554. has translated Rémusat's term 75 A. D. by 75 B. C.

† De Guignes, p. 28. But he certainly makes an improper use of this notice.

‡ De G. p. 31. R. to F. p. 83. Kl. p. 133. As. Trans. VI. 63. where the year 222 A. D. is stated.

§ De G. p. 31. R. to F. p. 84. Kl. p. 134.

Thirdly, the empire of "The Little Yuetchis" in Gandhara and India, at the commencement of the fifth century.

It is uncertain, whether we still have coins belonging to the Yuetchis, whose dominion was only in the north. We could only be inclined to assign to them those having on the reverse a horse, and not Cabulian legends.

Euthydemos and Eukratides as sovereigns of Bactria, famous for the fine breed of its horses, appear to have likewise adopted this symbol on their coins. And supposing even that coins with elephants belonged to the earlier period of the Yuetchis, we must ascribe this to the fact, that some of their hordes boasted of having penetrated to India.

Numismatology apparently profits us more for the history of the Scythians in the south of the Caucasus; but we must first take up again the thread of the Greek dynasties.

§ 17.

Greco-Indian empires.

We first call to mind, that the campaigns of the Greek kings from Bactria against India, can have but commenced about 200 B. C; that they originated with Euthydemos or his son Demetrios, and were directed against the power of the kings of Palibothra, the descendants of Chandragupta. This latter assertion must be more exactly detailed.

We know from ancient writers, that Chandragupta in his conclusion of peace with Seleucos Nicator acquired parts of Gedrosia, Arachosia, and of the country of the Paropamisades, and that their friendly relations continued under the sons of both kings, Amitrajâtâ and Antiochos Soter.* The third king of the Indian dynasty, Dharmazôka, is a name very celebrated with the Buddhists, because he afforded a general patronage to their religion, a fact now undoubtedly confirmed, as the inscriptions are decyphered, by which Azôka throughout his whole empire invited the adoption of the doctrines of Buddha.*

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* De Pentap. Ind. p. 44. Zeit-schrift fuer die Kunde des Morgenlandes i. 109.

We may therefore rely upon the statement in the Buddhist annals, that Dharmazôka enjoyed a long, peaceful reign during the years 260—219 B. C.

To corroborate the fact, that the dominion of Azôka, like that of his predecessors, extended to the Caucasus, it may be mentioned, besides the absence of reports stating the contrary, that the Chinese pilgrims also met with in the valley of the Panjhir monuments erected by Azôka for the glory of his religion.†

As another confirmation may be adduced the circumstance, that Antiochus in the year 205 *renewed* the confederacy with the king of the Indians, which could be only the case with a king of the Maurja-dynasty of Palibothra.‡ The king then mentioned, Sophagasenos, appears to be a son of Azôka.§

Contrary to this opinion, the successor of Azôka is named Sujazas (*"of good renown"*) in the Brahmanic genealogies; but we can hardly be deterred by this from comparing him with Sophagasenos (Subhagasena, *"of the victorious army"*||) as these kings even publicly substituted their titles of honour for

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* As. T. VI. p. 472. 791.

† Foë K. K. p. 395.

‡ Also this name was known to the Greeks ; see the interpretation of the word Μωριεῖς in my Prâcrit grammar, p. 247.

§ Zeitschr. I. 110.

|| M. de Schlegel, Ind. Bibliothek I. p. 258. The Chinese traveller Fahian also proves, that the son of Azôka reigned in Gandhara, Foë K. p. 67. If Rémusat has correctly translated the Chinese word "Fai," the Buddhists have called him "Dharmavardhana." The son of Azôka, who also reigned in Kazmira, is called Ialôka in the annals of the country, (Râj. Tarang. I. 107) a reading, which is hardly correct. It is evident from the succeeding verse, in which is certainly a play on the word *Jazas*, fame, that in the former text, this word also occurred in his name. He is said to have cleared the country from invading barbarians. At the same place, p. 115. His successor is a king of another family. From these traditions I shall only retain, that inroads of barbarians are mentioned immediately after Azôka, and that with his son the empire of the kings of Palibothra in Kazmira found its termination.

their original names, as *Azóka styles himself Pijadasi* on the columns.

The successor of Sujazas, Dazaratha, is confirmed by the inscriptions in the Buddhist temples at Gaja, in Magadha,* (Behar.)

I think it is by no means a rash attempt to connect these Indian reports with our investigations. Thence would result the following arrangement, viz., that Sujazas, who must have died at the commencement of the second century B. C. if he had reigned twenty years (on this we have no information), is the very same Palibothrian king with whom Antiochus renewed the confederacy; secondly, that the barbarians, who under his reign invaded India, are the Bactrian Greeks themselves; and, thirdly, that he or his successor, despite of Indian accounts to the contrary, was expelled by them from the westerly parts of his empire.

From our previous inquiry, it was evident, that Demetrios undoubtedly reigned in Arachosia, and thence more westward; whether his rule extended in an easterly direction, was left uncertain. We must now, however, appropriate to Agathokles also a share in the first expedition of the Bactrians against India, for by the beautiful execution of his coins he is coeval with Demetrios; he claims a purely Indian country as his dominion, and especially eastern Cabul; lastly, by the adoption of the old Indian letters he shows, that he succeeded in these provinces the kings of Palibothra, who used the very same alphabet. Nor do I know how Agathokles can obtain any other classification either at a later or earlier period, unless immediately before Eukratides and coeval with Demetrios. I shall not waste our time by conjecturing in what relation they stood together, how Agathokles commenced his career, and whether he belonged to the family of Euthydemos, or not.†

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* This also is a discovery, made by Mr. Prinsep, As. Trans. VI. p. 677.

† It might even be maintained, that by a confusion in the catalogues of names, Agathokles had been received as Sujazas into Indian history, as both words denote the same, and as both kings, according to the comparison of facts, above given, would be of the same period. It is evident, that we have not to recognise the Indian king on the coins, because

Pantaleon, with whom this Greco-Indian empire terminated, must have succeeded Agathokles, whom I therefore hold as king of Nagara Dionysopolis. Both of them have only Indian letters on their coins, and with them too Dionysos disappears.

If we thus have correctly determined the empire of Agathokles and Pantaleon, it must be one of the districts of which Eukratides took possession on his Indian expedition; for after the victory over Demetrios, he carried his arms against the Indus and Hydaspes. We have already noticed, that he probably did not reign there for a long time.

I have above explained my idea, how by the division of Demetrios' power the independent Grecian dominions of Drangiana and Arachosia, referred to by historical authority, had been formed; the Indian empire, mentioned by the same authority, was, if not actually formed, yet first consolidated after the murder of Eukratides. At least the conjecture is natural, that the abhorrence of such a deed must render it easy to an enterprising governor to find ready assistance in a revolt against the parricide. The first Greek king of this Indian empire was certainly Menandros, let the various dates given for his era and his accession differ as they may from mine. Here conjecture must be set against conjecture, and I do not think myself the supposition sound, that Menandros may have acquired the title of *deliverer*, peculiar to this country, by delivering it from the hateful dominion of the son of Eukratides.

On these three Indo-Grecian empires we may make the following conjecture. We assigned to Antimachos an empire

he would have called himself in this case Sujazas, and not Agathuklajô. But if Agathokles deprived the Indian Subhagasêna of the provinces on the Indus, and in the catalogues of kings was mentioned as his cotemporary under the name Sujazas, he might be easily confounded with the name of the Indian king, especially as the son of Asôka had at least two names, a Brahmanical and a Buddhist, like his father, and perhaps his grandfather (Zeit-schrift I. 109.) This explanation is not quite satisfactory to me; the coincidence of both names, above mentioned, is however, hardly accidental; and it is scarcely an objection, that Pantaleon, who probably reigned but a short time, has not left a similar trace in the Indian annals; he must be looked for in Dazaratha, which is impossible.

in Drangiana, as here only a maritime victory, of which he boasts, can have taken place.* To this may be added the following:—The Chinese, by reporting, that the kings of Kipin represented a horseman on their coins, alluded probably themselves only to the Scythian kings; these, however, had certainly adopted the custom from their predecessors.

As now Antimachos, as well as his successor Philoxenos, represent themselves as horsemen, we venture to refer them to Kipin; likewise the humped bull of the latter king alludes to Kipin. This country moreover is Sakastane, or Segistan of a later period.

Antialkides† and his successor Lysias lay claims to having reigned in Cabul and in its neighbourhood; if we have correctly interpreted the report of Justin, they must have possessed, besides Cabul, a part of Arachosia.

Amyntas and Archelios must perhaps also be classed in these two kingdoms.

The empires founded by Antimachos and Antialkides, probably existed but a short time; the first seems to have originated at the death of Demetrios, the second after the murder of Eukratides. We can assign to them no longer existence than to the year 126 B. C., when the Saces settled themselves in Kipin; and scarcely even to that period, as the Parthians had already taken possession of the Bactrian empire. In the passage in which the last struggle of the Bactrians against the Parthians is mentioned, Elymeans are indeed only noticed besides Syrians, and no Drangians or Arachosians. The small number of royal names also corroborate this short duration.

It would be too doubtful a measure to extend the use of Cabulian letters to Drangiana.

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* Mr. R. R. p. 18, thinks, he may have assisted Antiochus IV. on occasion of a victory over the Egyptians; but this appears hardly possible, even if he had reigned on the Indus.

† Mr. Mionnet has published (VIII. 483, 520,) a coin of Antialkides, before unknown. Obverse: image of the king with the Causia, and the upper part of the Chlamys. Reverse: Jupiter seated, holding in his right hand a Victory with a Palm, in the left hand a spear, placed across the shoulders; on the right hand near his seat an elephant, who holds a crown in its elevated trunk. Antialkides perhaps obtained the crown by his participating in an Indian expedition.

Still we must here keep in view, that the alphabet on the coins, if indeed derived from the west, must have been imported to Cabul through Candahar and Drangiana, as it did not come to Cabul through Herat and Bactria. Besides this however Antimachos and Antialkides may have imitated the example of Eukratides.

The Greco-Indian empire of Menandros must have existed longer. The number of the names Menandros, Apollodotos, Diomedes, Agathokleia, Hermaios, renders the assumption necessary. I have proved it probable that this line of kings was not encroached upon by the Parthians. The last coins, those of Hermaios, refer to the very same time, when expeditions against the Soter-dynasty may have been first planned by the Scythians. The widely extended empire of Menandros seems under Hermaios to have been limited to Beghram; Menandros must have possessed a kingdom eastward of Cabul, if Antialkides, as it appears, ruled then immediately after Eukratides. It would be, however, too bold to determine any thing concerning the mutual contests of these powers.

From the great number of the Hermaios coins, it is not improbable, that he either himself reigned long at Beghram, or that his dynasty continued there at least for some time; in the mountain country, easily defended, a smaller kingdom might maintain itself with more ease for a longer time. If the relation Kadaphes holds towards Hermaios be correctly stated, the Grecian dominion was here overthrown by an attack from the north, i. e. from the country of Kapisa; the power of Kadaphes itself, however, appears to have been of no great importance or long duration. A greater Indo-Scythian kingdom, as for instance that of Azes, may have absorbed it.

§ 18.

The Saces, the Tochares, and Parthians in Cabul and India.

We have above left the Saces in the country Kipin, where they settled themselves, about the year 126 B. C., while the Tochares, following them, roamed throughout Bactria, from whence they, half a century afterwards, united in one power, and penetrated beyond the Indian Caucasus to the southward. Looking for historical authorities of the further fate of the Tochares and Saces, I find, that they are brief and meagre, and it appears hardly possible to derive from them any certain results; they must however be examined.

If the geographer Dionysios composed his poem as early as it is ordinarily apprehended, he would have been the first who made mention of the Scythians about the Indus. v. 1088. Ἰνδὸν πὰρ ποταμὸν νότιοι Σκύθαι ἐνναίουσιν.

Eusthathius makes the just remark, that they were Indo-Scythians, as this name could not have been given them previously to their arrival in India. The era of Dionysios being however very uncertain, nothing can be inferred from his passage as to the time of the first advancement of the Scythians to the Indus.

The Periplus of the Erythræan sea, as well as Ptolemy, enable us to determine the extent of the Indo-Scythian empire, although this determination can only refer to a considerably later time than the first appearance of the Scythians on the Indus.

Indo-Scythia embraces, with Ptolemy (VII, 1), the following provinces:—In the direction nearest to the south and the east, Surashtra or the Peninsula Guzerat; then the delta of the Indus or Pattalene; further the country Abiria,[*] situated above it; he includes in the Scythian empire a small district, and some towns on the eastern bank of the river; most of them lie however on the western bank. How far up the Indus the Scythian dominion extended, is not quite evident; but Artoartar, above held by us to be a Scythian town, is mentioned as situated in the near neighbourhood of Peshawur. Hence it follows, that Indo-Scythia at that period, or rather a little earlier than Ptolemy, included Peshawur, the country on both banks of the Indus from Attock to its mouth, and Guzerat. The Punjab did not belong to it, as the Kaspireans occupied this province, as well as the country up to the Jumna and Vindhia,* neither did Barygaza. The mountains to Arachosia, and the desert on the eastern bank of the river form the other boundaries.

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[*] This, and not Sabiria, is to be read, any more than Iberia in the Periplus. They are the Abhira of Indian geography. De Pentap. Ind. p. 28. The passage in Periplus p. 24, must perhaps be written: Ταύτης τὰ δὲ μὲν μεσόγεια τῆς Σκυθίας Ἀβηρία καλεῖται, τὰ δὲ παραθαλάσσια Συνραστρήνη for Ἰβηρία, καλεῖται δὲ τὰ κ. τ. λ. The delta of the Indus is ascribed to the Scythians in the following passage of the Periplus, p. 22, on the emporium on the mouth of the Indus: πρόκειται δὲ αὐτοῦ νησίον μικρόν· καὶ κατὰ νώτου μεσόγειος ἡ μετρόπολις, αὐτῆς τῆς Σκυθίας Μινναγάρ. βασιλεύεται δὲ ὑπὸ Πάρθων, συνεχῶς ἀλλήλους ἐκδιωκόντων.

It is therefore evident, that this empire is very small in proportion to what Azes claims on his coins.

We rather have in the limited extent above stated, a dissolved Indo-Scythian empire before us. The Periplus partly explains this decline of the Indo-Scythian power by mentioning that the capital, Minnagar, was in the writer's time in the possession of the Parthians, and that both nations continually expelled one the other.

Let us now inquire into Parthian history, whether it yields us some illustrations.

From our examinations, above effected, of the relations of the Parthians to the Scythians, it resulted, that since the arrival of the Scythians in Bactria and Segistan, to the year 37 B. C. no report shows that the Parthians had regained such ascendancy over the Scythians as to rise against them as conquerors. The same refers also to Artaban III. (died 41 A. D.), who more than once must have had recourse to the Scythians in the north. There is least of all any trace that Vonones I. during his short and troubled reign, may have made the conquest in the east, which we must ascribe to him, if the coins, above mentioned, belonged to him.

Of Bardanes (died 47) a successful campaign is mentioned against the Dahes. What we know of his successor Gotarzes (died 50) does not entitle us to attribute to him any new aggrandisement of the Arsacidian empire. Then come we to Vonones II. who reigned but a few months; after him to his son Volagases. His reign was a long and happy one,† and though he was neither indolent nor of unwarlike disposition, yet he lived in peace with the Romans. It is therefore also on the authority, though only implied, of history, that we assign to his reign the conquests of the Parthians in Cabul, of which the coins with the names of Vonones and Volagases bear witness.* Nor do we think ourselves mistaken in tracing from this settlement in Cabul the Parthian irruptions into India, mentioned in the Periplus.

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* *μέχρι Οὐινδίου ὄρους* and because Μόδουρα ἡ τῶν θεῶν therefore Mathura belonged perhaps to the Kaspireans.

† 50—85. A. D. Visconti, Iconogr. III. p. 173.

The circumnavigator of the Erythræan sea tells also of these inroads as an eye-witness, in which will be discovered another reason against placing him so low as the era of Augustus.

Be it as it may, if Azes be taken for the successor of Vonones, and therefore of Volagases, he is placed in so late a period, that the close resemblance of his coins with Grecian patterns is quite inexplicable. Considering the extent of the countries which are under the sway of Azes, no other has a juster title to be identified with him than the Yankaotching of the Chinese annals. The time would correspond, as we have to look according to those accounts, for the flourishing power of the Yuetchis just in the years 20—50. (A. C.)

Two facts, however, are at variance with this view. First, the difference of the name, too palpable even for Chinese corruption of sounds, and then, that of the coins.

They are so closely allied to Greek types, that we must connect Azes immediately with the Greeks, and in this case we must likewise expect coins of Indo-Scythian kings who preceding Azes, existed between his time and that of the Greeks, and of this description we found only Mayes. Nor does our numismatological guide, M. Raoul-Rochette doubt in the least as to this earlier era, and accordingly places him immediately after Hermaios (II. 42).†

But if Azes reigned so early, he belonged to the Saces, and not to the Yuetchi. This supposition is supported by the figure of a horseman, which he adopts on his coins; for the equestrian coins come from Kipin, where the Saces, and not the Yuetchis, had settled themselves.

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* Lastly, Volagases I. has styled himself "the just," as the Cabulian. Mionnet VIII. 448. Vonones I. does not bear this epithet.

† II. 42.

Now it is true we have not observed that the Saces as well as the Yuetchis have made any conquests in India; but it seems to follow, first, from the fact, that the empire of Hermaios apparently was on the eve of its destruction at the very time (120 B. C.) to which we may assign the inroads of the Saces in India, immediately after 126 B. C.: secondly, because the capital of the Scythian empire of a later time, was named Min,* and as this name occurs in Sakastane itself, it must have come thence, and not by means of the Yuetchis to the Indus. It would be, lastly, implied in the Chinese chronology, if correctly translated,† that the Yuetchis reconquered India; and before them, who but the Saces in Kipin could have conquered it? However little confidence we can put on these discussions, yet we must at once adopt the supposition, that the empire of Azes existed about 100 B. C.

Azilises declared himself as successor of Azes; as the Chinese mention two names of these kings of Kipin, we shall perhaps in time obtain coins of theirs, by which the era of Azes may be determined with greater certainty.‡ The coins above described, can only be hypothetically taken for the coins of such successors of Azes.

If Azes, however, be considered as the founder of an empire of the Saces in India, either Kadphises or the nameless Soter-Megas, must be held as the great conqueror under the Yuetchis.

Among them the king last mentioned appears to have most claims, in virtue of the remark, already made, that he seems to have founded a new dynasty, which was established from Bactria in Cabulistan and the Punjab, and again assuming the name Soter of the Greek kings, maintained itself up to the period of the Parthian relations with India.

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* Nagara, Sanscrit town; Μὶν πόλις in Sakastane with Isidor, p. 9. De Pentap. Ind. p. 56.

† As. T. VI. p. 63.

‡ I would even conjecture, that Ontheoulao was Azilises, if I were persuaded that the Chinese express a Z by th. They place him 87 B. C., and this statement is indeed in a striking manner corresponding with the place given by the coins to Azilises.

The monogram of the nameless king, and the epithet of *deliverer,* recurs as well on the coins of Kadphises as on those above described; it occurs last on those of the Kanerkis. Azes has not this monogram;* it seems therefore to be the monogram of the Yuetchis. In all of them are probably to be recognized successors of the nameless king of the Yuetchis, but it remains doubtful, how we have to place them before and after the Parthian epoch of those provinces, and whether they succeeded to the same throne, or reigned at the same time in neighbouring countries.

*Ptolemy's description of Indo-Scythia, like that in the Peri*plus, shows a smaller Scythian empire on the Indus, together with which more than one kingdom may have subsisted in western Cabulistan. The author of the Periplus mentions besides those, an independent kingdom of the very warlike Bactrians (p. 27); the Yuetchis alone can be understood by this. These intimations point to a Scythian monarchy in a dismembered condition at the period to which they refer.

We may assign Yndopherres with more confidence to the Parthian period. On a general view we run no risk of ascribing Kadphises, the Parthians, and Yndopherres, to the last half of the first century (A. D.), but to give more exact definitions would be too dangerous.

Lastly, the Kanerkis, who are allied to Kadphises, and who are the last of these leaders of hordes, probably belong to the commencement of the second century; but they rather represent a new horde of the Yuetchis, advanced from Bactria, than a direct continuation of the former hordes, for they are distinguished from them, as well as Kadphises from still earlier tribes, by his position, represented as going in a carriage, while previously to him the Scythian kings were represented as horsemen. The Yuetchis are indeed said to have ridden in a carriage, however it is added, in one drawn by oxen.

We have already observed, that the Chinese identified the end of the power of the Yuetchis in India with the beginning of the

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* R. R. II. p. 48.

Sassanians, and we have had no reasons to assign to the Kanerkis a later period. If they be referred to a later date, they must be "the Little Yuetchis," who founded a new empire in Gandhara in the fifth century, but such a great interval between Kadphises and the Kanerkis would hardly be admitted.

Other monuments seem to belong to "the Little Yuetchis," on an examination of which we cannot however enter. The history, like that of the Sassanians in Cabul, of the white Huns in India, mentioned by Cosmos, and lastly of the Murundas, of whom Indian inscriptions from the Sassanian time bear witness, would require new preparations far beyond the scope of this essay.

Here we shall therefore add only this, that Fahian being in the year 400 in these countries, mentions the power of the Yuetchis as having passed away (S. Foe. K. p. 766.)

If we be not mistaken, the inquiry leads without compulsion to the probable result, that between the empire of Azes and the renewed power of the Scythians under the king of the Yuetchis, an interval took place in the dominion of the countries on the Indus. This has been already previously* deemed to be a corroboration of the Indian account, according to which the epoch of Vikramaditya, which commences with the year 56 B. C. was founded on the occasion of a victory over the Saces gained by this king. In this case Indian tradition, which may certainly adduce in its favour the use still existing, and to be traced to a very early period, of counting from that epoch, would be in perfect correspondence with what has been the result of our inquiry into the Scythian history. Vikramaditya reigning in Ujjajini, and therefore a direct neighbour of the Scythian empire, which under Azes extended to the boundaries of Malwa, would, on this supposition, have repelled the successors of Azes to the Indus. After Vikramaditya we hear nothing of the empire in Ujjajini, and this silence finds its explanation in the growing power, soon after the commencement of our era, of the Yuetchis, whose kingdom Ptolemy described as still extending on the Indus to Guzerat. By this power Malwa must accordingly have been confined to narrow limits.*

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* As. T. VI. p. 63.

It would be rather imprudent to venture any conjecture on the distribution of the countries on the Indus and Cabul among the different dynasties of the Scythians and Parthians, as neither historic accounts assist us, nor are the coins so completely put together, and explained, that the several families can be properly arranged. This is perhaps a fact, that a frequent change of dynasties happened, and a speedy decomposition of the greater into smaller kingdoms. This fact is supported by the nature of those countries, the lawless manners of the nations, and the analogy of Turkish and Mogul history.

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* Having given this explanation, I leave it to the judgment of the reader, whether there be a reason in the account of the Periplus, of the empire of the Indo-Scythians, to bring down, according to the view of M. K. O. Mueller, by some centuries, the epoch of Vikramaditja. If he takes the Vikramaditja, now known to us by old Indian coins, for the real conqueror of the Scythians, his choice is evidently very unfortunate, as this king belongs to the dynasty of the Guptas in Kanôje, contemporaneous with the Sassanians. If there be any correspondence in the accounts on Vikramaditja, it is, that he reigned in Ujjajini. I have already discovered a reference to the empire of Vikramaditja in the passage of the Periplus on the Ozene, viz. that the ancient royal residence was there (de Pentap p. 57), being at that time in a very declining state; and I have no reason whatever to change my view there set forth. It is well known, that Vikramaditja afterwards became the hero of a great number of fabulous tales; he has become the Carolus Magnus of Indian poetry, and is as far removed from firm historic ground as Carolus Magnus would be if we had to take our information of him merely from the chivalrous novels; but for Vikramaditja, save poetry, no prose, on chronicle, has been preserved to us. The early adoption of the epoch of Vikramaditja by the ancient astronomers, might be here of far greater importance than all those tales from which Wilford has endeavoured to construe a history of Vikramaditja, and of the second founder of an Indian epoch, Ialivahana. To render complete this confusion, it must be added, that the name was afterwards often adopted by Indian kings; one of them seems even to have waged war with the Scythians. The annalist of Kashmir, who had, so to say, sufficiently respectable authorities, is doubtful whom of two Vikramaditjas he must take for the real Sakari (enemy of the Saces) Raj. Tar. II., 5. III, 125. He decides himself on the second, (not to put down the epoch, which is clear to him) but because in order to follow the Cashmerian chronology for the Buddhist part of his history, he is necessitated to carry back some centuries all ancient dates, and even to admit afterwards a great gap in the series of the kings. We must therefore accede, contrary to the view of the annalist, to the opinion represented as the common one, in holding the first Vikramadijta as the founder of the epoch. It is now a curious fact, that between him and the second, the reigns numbered together, fill out 286 years The second reigning 236 A. D. would coincide with the end of the Yuetchi empire and the commencement of the Sassanians, it is therefore probably founded on a historic date, if the second Vikramaditja is likewise represented as fighting with the Saces.

Another part of the history of these Scythians is left in the dark. The Chinese annals describe to us the Yuetchis as zealous Buddhists, hence rises the question, whether there still exist with the Yuetchis monuments of this religion.*

We can now take it for granted, that from Azôka's period Buddhism was widely diffused through Cabul; the fathers of the Church also know the Samaneans in these countries;† and the Chinese pilgrims as eye-witnesses, speak, of the great number of Buddhist cloisters and monuments found there; Buddha images are likewise lately dug out in Cabul itself. There is accordingly no want of Buddhist monuments, but it is the question, whether we must attribute them to the Yuetchis.

We must here refer to the coins, and one class of them, that of Behat, must indeed be considered as Buddhist. However it is only probable that those with duplicated legends belong to a Scythian dynasty, but to this are limited the Buddhist numismatological monuments of the Yuetchi kings; and of Azes, Kadphises, the Kanerkis, no really Buddhist coin has been discovered. It must therefore be left undecided, whether the Chinese reports did transfer to all Yuetchis what was only correct to maintain as of a part of them.‡ But while I must leave this point undecided, I am reminded at the same time that I have given all that from the examination of the coins appears to me a certain or a probable result. The field of conjecture is already too richly cultivated, for me to add arbitrarily to what has been done therein. In conclusion, I shall sum up in a table the historic results of my investigation. I need hardly tell the reader, that although in the table the facts are placed together with apparent claim to equal authenticity, they occupy in the book itself, and in reality, all the different places which on a large scale are intermediate between certainty and conjecture in its various degrees, according to individual views.

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* Thus the passage, As. T. VI. 63. At the period when all these kingdoms belonged to the Yuetchi, the latter put their kings to death, and substituted military chiefs. They enjoined all their people to practise the doctrine of Fuh-too-chi.

† See my treatise, in the Rhenish Museum, for Philology, 1832. vol. I., p. 171.

‡ From Professor Ritter's book, the Stupas, etc. Berlin, 1838, which I received when printing my book, I fully understood his view on those monuments, and its reasons. I am sorry to say, that I cannot be persuaded into the Buddhist origin of the topes. I have already above separated

Separation of Bactria from Syria under,

Theodotos I.	soon before	256 B. C.
Theodotos II.	his son and successor,	
Euthydemos	expels the family of Theodotos, and himself ascends the throne of Bactria before,	209
	Concludes peace with Antiochus the Great, 205, makes conquests in Ariana and India after	200
Agathokles	founds an empire in eastern Cabul, about	190
Demetrios	succeeds his father in Bactria, about	185
Eukratides	takes possession of Bactria. Demetrios maintains himself in Arachosia,	175
Pantaleon	succeeds Agathokles,	170
Eukratides	dethrones Demetrios, and conquers the Indian empire of Pantaleon, about	165

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the inquiry into the nature of the topes, from the examination of the coins, and postponed it to another time; I maintained at the same place, that as yet no Buddhist coins had been discovered in the topes. Mr. Ritter on the contrary states, that they are met with (p. 207). But he erroneously says, that Mr. Prinsep has recognised among the coins from Manikyala some Buddhist; in the passages quoted he certainly mentions nothing of this kind. Then continues Mr. Ritter (p. 238) "As we now possess ascertained chronological determinations of the Buddhist religion in the Mokadphise's, Kanerki's, and Azes' coins." The four Buddhist coins alluded to by Mr. Ritter, occur As. T. III. pl. XXII. No. 28. till No. 32. They are coins of the Kanerki dynasty, therefore Mithra gods on Buddhist coins? Then III. pl. XXVI. No. 2, No. 3, IV. pl. XXII. No. 12, No. 13, or with him plate VIII. No. 2—4. Therefore Siva on the obverse, while Azes is represented as Buddha seated on the reverse? If Mr. Ritter does not know any other coins out of the topes which escaped my knowledge, I shall not be necessitated to give up my previous assertion, which was here my only purpose to vindicate.

Foundation of a Grecian empire in Drangiana by Antimachos, about	165	
Murder of Eukratides by his son, about	160	
His son (Heliokles) succeeds him in Bactria, Antialkides founds an empire in Arachosia and western Cabul, Menandros a large kingdom in India, after	160	
Philoxenos succeeds in Drangiana, Lysias in Arachosia, afterwards Apollodotos in India, Archelios and Amyntas succeed in the western empires,		
Mithridates I. of Parthia conquers Drangiana about	145	
Destroys the Grecian-Bactrian kingdom,	139	
Succession of Diomedes, Agathokleia and Hermaios in the Greco-Indian empire to	120	
Inroads of the Saces and Tochares in Bactria	126	
The Saces occupy Drangiana, the Tochares Bactria, the Grecian empire of Hermaios subverted by Kadaphes about	120	
Great empire of the Saces under Azes after	116	B. C.
Azilises his son, succeeds about,	90	
Expulsion of the Saces from the Indus countries by Vikramaditya king of Malwa	56	
Division of the empire of the Saces,		
Khieoutsieouhi unites the tribes of the Tochares and conquers the possession of the Saces after	40	B. C.
Yeukaotching his son, makes great conquests in India about	20	A. D.
Under Volagases conquests of the Parthians in Cabul, and inroads into the countries on the Indus, after	50	
Kadphises' empire on the Indus and in upper India to the Ganges, the dynasty of the Kanerkis succeeds in his empire,	100	
Downfall of the Arsacians in Parthia, conquests of the Sassanians in Cabul; restoration of Indian power in Upper India by the dynasty of Kanoja, after	226	

Paper on Ancient Land Grants on Copper, discovered in Assam. Communicated by Major F. Jenkins, *Governor General's Agent N. E. Frontier.*

A putter of three copper plates, joined by a large copper ring to a seal, containing within a raised rim a figure of Ganesh, was lately dug up near the station of Tezpore, in the Durrung division, and I have the pleasure to enclose a copy of the inscription.

A similar grant of two plates was lately produced by a Brahmin in the Kamroop Courts, to substantiate a claim to some Lakhiraj lands; at the time it was first brought up, there was no person in the province who could read the inscription, but having given to a Pundit the alphabets of ancient forms of Sanscrit writing, published by Mr. James Prinsep to illustrate his discoveries, he was soon able to make out the inscription.

It was a grant of land as Burmuttur, by Durmpal, in the year* 36, without any mention what era, to three Brahmins, and detailed the boundaries of the grant. That inscription was not very legible, the letters in some places being much rubbed, but the letters in the present Putter are quite distinct, and I hope they have been correctly copied.

The Dewali which was formed by this grant, viz. Maha Rudra Dewali, is still in existence, though in a very dilapidated state, and has given its name to the Mowza on which it stands.

Of the extent of the country under the Pal dynasty on this frontier, or of any particulars of their family or history, I fear we are not likely to find any records in Assam. The only mention of the Pal Rajahs that I have met with, is a very ancient looking chronicle possessed by a Brahmin, the first leaf of which is apparently lost. It now begins thus:—

Lakhipal,
Subabu,
His minister Sumati,
Then follow the names of
Khetrijetari,
His son Subalik,
and seven names, ending in Narain, and after them is the name of Ramchandra, then intervenes the word,

As being the Rajahs or rulers of "Burcherides," Perhaps the present districts of Chooteya, Chardoar, Noadoar, Chudoar.

Jaintee,
probably meaning the country we call Jainteah; and after it follows the names of the following Pals:—
Japandu Pal,
Hari Pal,
Dhamba Pal,
Ram Pal,
Pakhya Pal,
Chandra Pal,

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* Note. Capt. Jenkins had the kindness to send me subsequently the plates themselves, which were exhibited at a recent Meeting.

Narain Pal,
Amar Pal,
Mantri Pal,
Haina Pal,
Syama Pal,
Mactya Pal,
See Pal,
Gandha Pal,
Madhrub Pal,
Lahikya Pal,

After these follow:—

Minangka,
Gujangka,
Sukanangka,
Mrinangka,
Phinjua,
and others.

These are the names given in page 117 of Prinsep's Tables, but in a different order; but no further notice is taken of any of the Pal race.

There is little doubt but these last named Rajahs were rulers over a part of the north bank, of which Beshnath was probably the centre, as some very extensive lines of fortification are universally attributed to them; and the Pals preceding them, notwithstanding the word Jaintee alluded to, were likely Rajahs over the same country. They may have been a branch of the family of Bupal, who reigned over a district of the empire formerly governed by their ancestors. The succeeding Rajahs were probably Chooteah Cocherees, who are supposed in Assam to have been of the Shan race.

स्वस्ति श्रीमान् प्राग्ज्योतिषाधिपान्वयो
महाराजाधिराजश्रीवनमालवर्म्मदेवः

स्वस्ति । श्रीमत्कैलासभूभृत्पृथुकनकशिलासंगमान्दोलनोत्थैरा
सारैर्हैमपंकाविलतुहिनकरैः सिक्तवैश्वारिसार्थैः । अम्भः क्षीरत्
(सुभूष) प्रवरसुरवधूकेशहस्तच्युतैर्व्वानाकेशद्रुमप्रसूनैररुणितसलिलो
व्यात्सलौहित्यसिन्धुः ॥१॥ स पुनातु पिनाकी वो यच्छीर्षे स्वर्धु
नीजलं । कीर्णं रेचकवातेन तारकाभकरायितं ॥२॥ नरक इति
सूनुरासीदादिवराहस्य भुवितदुद्वारे । अदितेः कुण्डलहरणे प्रता
पमपि यो हरेरहरत् ॥३॥ कृष्णेन तं निहत्य च सूनो भगदत्तवज्र
दत्ताख्यौतस्यसुतौतद्वनिताकरुणविलापहृतहृदयेन ॥४॥ तस्मा

प्ते भगदत्ते श्रीमत्प्राग्ज्योतिषाधिनाथत्वं । विनयभरोपितदैत्यप्राराधयदीश्वरं तपसा ॥५॥ तुष्टेन तेन तस्मै दत्ते सुपरिपत्तनाधिनाथत्वं । प्राग्ज्योतिषाधिराज्यं कालेन तदन्वयस्यापि ॥६॥ तस्यान्वये भूत्क्षितिपालमौलिमाणिक्यरोचिस्फुरितांघ्रिपीठः । प्राग्ज्योतिषेशः शतवैरिवीरः प्रालम्भ इत्यद्भुतनामधेयः ॥७॥ स पूर्व्वंनृपतिगुणसम्बन्धौघरागानुरंजितदिगन्तःसालस्तम्वप्रमुखैः श्रीहरिषान्तैर्म्महीपालैः दिवमारूढैराद्यस्य भूभुजोर्थैकवैरिवीरोभूत् ।८॥ भ्राताशौर्य्यत्यागैरसन्मानान्नारथोतिनृपः । श्रीजीवदेतिसंज्ञाराज्ञी हृदयानुगाभवत्तस्य ॥९॥ वङ्कजनवन्द्यामहतः प्रभातसन्ध्येव। तेजसोजननी । तस्यास्तस्यतुराज्ञः सुतोभवन्नृपशिरोर्च्चितांघ्रियुगः । श्रीहर्जरोनृपेन्द्रः श्रिया स्वयं यः समुपगूढः ॥१०॥ धर्म्मप्रवादेषु युधिष्ठिरो यो भीमोरिवर्गे समरे च जिष्णुः । एकोप्यनेकैरिति संगतो यो निःशेषकर्न्नीतनयत्वमेतः ॥११॥ गोपीजनानन्दितमानसस्य देव्येव वक्षः परिहृत्य विष्णोः । निःशेषरामाजनदेहसंस्थमादाय सौन्दर्य्यमिहाजगाम ॥१२॥ वर्णाद्यशेषगुणजातमयम्बभार पत्युर्म्ममातुलवलस्य रथांगपाणेः । तेनाहमयमहिषीजगतीभुजोस्यभूताजनेन खलु लाघवमभ्युपैमि ॥१३॥ इति यस्य महादेवी विलोक्य मनोनुगाभवल्लक्ष्मीः श्रीमत्ताराभिधानाप्रमदारत्नोत्तमा नृपतेः । तस्याशेषक्षितिपमुकुटोद्घृष्टपादाब्जपीठस्याभूत् सूनुर्न्नृपगुणमहारत्नमालाविभूषः । तस्यां देव्यामखिलभुवनानन्दको यः शशीव श्रीमान् ख्यातो जगति वनमालाभिधानः क्षितीशः ॥१४॥ जलनिधितटवनमालासीमावधिमेदिनी पतित्वस्य योग्य इति नाम धाताचक्रे वनमाल इति यस्य ॥१५॥ प्रवला राति मत्तेभघटाध्वान्तोघसंघतिं । दिवाकरायितं येनविदार्य्यरणभूमिगां ॥१६॥ क्षितितनयनृपतिवंशप्रभवनरेन्द्रामलाम्बरेयेन । स्फुटमेव मृगांकायितमस्यापारातितिमिरौघं ॥१७॥ भूरिदृप्तरिपुवीरवाहिनीशैलवज्रमुच

विक्रमाश्रिना। येन राजकमशेषमस्यताश्रीरकारि चिरमेकभर्तृका ॥
१८॥ यस्य प्रतापभीत्या वङ्गरिपुजयिनोपि मेदिनीपालाः। केचि
च्छिन्नो विजयपङ्कः प्रसभमालयाम्बराण्यन्ये ॥१९॥ राज्ञामन्येषां ये
निश्चितानाज्ञाविधूतृपा मुमुचुः। यस्मात्ततो विभीत्या भूमिं दूरं नि
जांते विजङ्कः ॥२०॥ यैरभिमुखं रिपूणामाघटितं मत्तकरिघटाटोपैः
। विक्रमैकवृतोस्तैर्यस्यांजलयः कृताः क्षितिपैः ॥२१॥ धूपच्छेनङ्गपस्य
काश्चा
येन पतितंकालान्तराद्दालयंसौधंभक्तिनवाखिलामरवरव्रातार्चितां
भेः पुनः। प्रालेयाचलशृङ्गतुंगमतुलयामेभवेश्मयाजनैर्युक्तं हेतुकशूलिनः
क्षितिभुजाभक्त्या नवं चक्रुषा ॥२२॥ यस्यानन्तद्युतिमतिषितानाग
लोकेकसन्तीदिङ्नागानां श्वसितजनितां शीकरालीं च दिक्षु। सं
पूर्णेन्दोर्विवयति विमलामंशुमालां विचित्रां राज्ञोनल्पाविचरतितरां
कीर्त्तिरव्याप्यजस्रं ॥२३॥ सत्यगाम्भीर्य्यतुंगत्वप्रतापत्यागविक्रमैः।
योजयन्धर्म्मजाब्ध्यद्रिभानुकर्णमरुत्सुतान् ॥ यस्य यशः शशिनेदं
भुवनं धवलीकृतं विलोक्य दृशासवीर इवोदेति प्रालेयमरीचिरद्या
पि ॥२४॥ देवागारं वाद्यगीतप्रणादैर्नानारामान् सत्रिणां व्याहृती
च। गायन्त्यद्याप्यवूजरम्याः खवाप्पो देशे देशे शालिनीं यस्यकीर्त्तिं
॥२५॥ वङ्कहेमरौप्यगजवाजिमहीप्रमदादिरत्ननिचयं वङ्कशः। प्रद
दवारमनिशं निगदं प्रमिताक्षरोपि वङ्कवागभवत् ॥ प्रमीतसमस्त
वर्णाश्रमादपरिमितसुभगसाधुविद्वज्जनाधिष्ठानाद्दिविचगजतुरग
शिविकाभिरूढैर्महानरपतिभिरवनिपतिसेवार्थं गच्छद्भिःप्रत्यागच्छ
द्भिस्सुसद्दलंमहाराजमागादसंख्यगजतुरगपदातिसाधनन्निरन्तरनिब
द्धसकलदिगन्तरादुदयवेलाचलोत्थितोत्तुंगतरुप्रकुनविश्रान्तमत्तब
र्हिणकेकारवोद्भ्रान्तभुजगव्रातमुक्तपुत्कारप्रकम्पितानेकताविगलित
कुसुमनिकरपरिमत्तसुरभिसलिलेनतदुपवनसप्रदावानलदह्यमान
कालागुरुधूमसम्भवाम्बुधरवृन्दसुगन्धिजलौघप्रवाहिणा। उदयतटम
हीधरोपवनगन्धिपूर्णाङ्कुरभुजाङ्ककचित् स्वयंमृतानामन्यथप्रणव

न्धुकुलयूथानामपरचतृणसंघविनिहताद्भक्षितमांसोज्झितानां क
स्तूरिकामृगाणांमदगन्धेनमोहितसकलतीरोपकण्ठनिवासिजनपदे
नसकलसुरासुरमुकुटमणिमयूखमंजरीरंजितचरणपीठाभ्यां श्रीकामे
श्वरमहागौरीभट्टारिकाभ्यामधिष्ठितशिरसः कामकूटगिरेः सतत
नितम्बचालनादधिकतरपविचपयःसम्पूर्णस्रोतसा । मज्जद्विला
सिनीकुचकलशतटाश्लिष्टमदपंकाविलसुगन्धाम्भसा । वेश्यांगणाभि
रिव नानाभरणशोभितप्रकटावयवाभिर्बालकुमारिकाभिरिव क्वणत्
किंकिणीभिः कार्णाटीभिरिव कठिनाभिधातसम्वर्द्धितवेगाभिर्वार
स्त्रीभिरिव चामरधारिणीभिर्द्दशवदनान्तःपुरिकाभिरिवकर्षितस
न्ततदशनाभिः पवनकामिनीभिरिवात्यन्तवेगवतीभिः रमणीयदलु
ल्हांगणाभिरिव सकलजनमनोहारिणीभिर्नटीभिरिव नर्त्तकपुरुषाक्र
मणसम्वर्द्धितोत्कम्पाभिर्दुर्गतदेवपालभिरिव सततोत्तानस्थानका
मिनीभिरलंकृतोभयतीरोपान्तदेशेन श्रीलोहित्यभट्टारकेण सनाथ
श्रीहरूप्येशनात् सपरममाहेश्वरो मातापितृपादानुध्यातपरमेश्वर
परायणचित्तको महाराजाधिराजश्रीवनमालदेवः कुशलीः * बभूव
शाण्डिल्यकुलप्रदीपो वेदार्थविद्विज्जटनामधेयः । सांगंयजुर्व्वेदम
धीतवान् यस्त्यागी शुचिर्दैवगणोपपन्नः ॥ शौचविमगुणोपेता पत्नी
सम्भायिकाभिधा ब्राह्मेण विधिनासम्यक् परिणीताकुलोद्भवा सूनु
स्तयोर्वेदविदग्रजन्मा इन्दोकनामा गुणवान्वरिष्ठः । तस्मै ददौ
श्रीवनमालदेवो ग्रामं स्वमातापितृपुण्यहेतोः ॥ त्रिस्रोतायाः पश्चि
मतः सजलस्थलसंयुतं । अभिम्पूरवाटकाख्यमष्टसीमापरिच्छदं ॥ पूर्व्वे
णद्बलांगसभसीमापूर्व्वदक्षिणेनचन्द्रपरिसभसीमा दक्षिणेन अवा
रिसभसीमा । दक्षिणपश्चिमेन पुष्करिणीसभसीमा पश्चिमेननौकुवा
सभसीमा ॥ उत्तरपूर्व्वेणद्बलांगलसभसीमा अष्टौसीमापरिच्छदाः ॥
सम्वत् १९ छभिकाकछि ॥

(१ एवंविक्रंतच

चकम्पेतीर्णलौहित्ये तस्मिन् प्राग्ज्योतिषेश्वरः । तद्गजालानतां प्राप्तैः सहकालागुरुद्रुमैः । न प्रसेहे स रुद्धार्कमनभ्रमयदुर्दिनं । रथ वेगरजोप्यस्य कुत एव पताकिनीं । तमीशः कामरूपाणां अत्याखण्डलविक्रमं । भेजे भिन्नकटैर्नागैरन्यानुपरुरोध यैः ॥ कामरूपेश्वर स्तस्य हेमपीठाधिदेवतां । रत्नपुष्पोपहारेण च्छायामानर्च पादयोः ।

श्रीमद्भागवतदशमस्कन्धनवपंचाशत्तमाध्याये

राजोवाच । यथा हतो भगवता भौमो येनच ताः स्त्रियः । निरुद्धाश्च तदाचक्ष्व विक्रमं शार्ंगधन्वनः । शुक उवाच ॥ इन्द्रेण हृतछत्रेण हृत कुण्डलबन्धुना । हृतामराद्रिस्थानेन ज्ञापितो भौमचेष्टितं । इत्यादिना प्राग्ज्योतिषाधिपभूमिपुत्रनरकासुरवधो वर्णितः

अथ प्रथमः श्लोकः स्रग्धरा तत्तृतीयचरणे अम्भः क्षीरदित्युत्तरं अक्षरत्रयं नास्ति तत्रसुभूषेति दत्त्वा पूरितं । एतन्मध्ये सर्व्वत्र डकारस्थाने रेफः तद्देशीयानां डकारोच्चारणसामर्थ्याभावात् यथोच्चारणं तथालिखनं । शेषे चित्रोताया इति तत् कर्त्तुर्भ्रान्तिः चित्रोतस इतिसाधुः । प्राग्ज्योतिषाधिपस्य वनमालवर्म्मणोराज्ञो गंगातीरेऽपि अधिकारःस्थितः गङ्गातीरे यागं कृत्वा याज्ञिकाचार्य्याय गंगा पश्चिमतटे भूमिदानं कृतं ताम्रशासनेन भूमिदानं हि यागदक्षिणा रूपमेव प्रसिद्धं वर्णितं च शिशुपालवधादौ ॥

आदिवराहात् भूमेः पुत्रोभूत् नरकः स कृष्णेन हतः तस्य पुत्रौ भगदत्तवज्रदत्तौ नरकपत्न्याः करुणायुतरोदनेन करुणहृदयः कृष्णो भगदत्ताय प्राग्ज्योतिषाधिपतित्वं ददौ प्राग्ज्योतिषाधिपस्य भगदत्तस्य वंशे प्रालम्भः प्राग्ज्योतिषाधिपोभवत् । तस्य पत्नीजीवदा राज्ञीजीवदायां प्रालम्भादजनिहजरः तस्य पत्नीतारा तयोः पुत्रो वनमालदेवः ॥

Literal Translation, by Pundit SARODA PROSAD CHUCKERBUTTY.

SUCCESS.

1. May the Louhetya Sindha, (Brahmaputra river) wherein the fish are abundantly supplied with water, and whose stream is ruddy with the dashing spray, turbid with golden mud mingled with ice, splashing up as the waves fall on the golden rocks of the beautiful *Kailasha* mountain, ruddy too with the heavenly flowers dropped from the hair and hands of the goddesses who come down to sport therein, protect you!

2. May the *Pinákapání (Siva)* on whose head the *Gangá* waters cast up by the wind, are, as it were, the stars on the firmament, sanctify you!

3. The first Baráha (the incarnation of the Boar) had a son named *Naraka*, from the Earth (his wife), at the time of her delivery; who (Naraka) robbed *Aolite* of her earrings,[*] and Harí (Indra) of his power.

4. *Krishna* having slain him *(naraha)* felt excessive grief by the lamentations of his wife, and could not therefore refrain from creating his two sons, named *Bhagadatta* and *Vajradatta*.

5. Bhagadatta; who was modest, having succeeded to the guddee of *Prágjyotisha*, (Kamroop) devoted himself to the adoration of him (Krishna) the supreme Deity.

6. Krishna being pleased with him, made him master of another good territory; but in time the sovereignty of *Prágjyotisha* was after him governed by his posterity alone.

7. From his line was born *Prálambha*, whose name was wonderful to all. He was the Lord of *Pragjyotisha*, and destroyer of his enemies. His footstool was illuminated by the light of the crest-jewels of all Rájás.

8. He was against those who were enemies to his ancestors from *Sálastambha* down to *Sríharisha*, who are all deceased, and who, with all their noble and royal qualities, delighted all the extreme regions.

9. His *(Prálambhá's)* brother, greatest of all Rajas, abandoned his valour with indignation, but not his car (? indignantly resigned the fight, yet left not his car?)

10. His queen, named *Jívadá*, was dearly beloved by him; like *Prabhata Sandhyá*, (morning twilight) she was *vándyá*[†] of all, and the source of great *tejas*.[‡]

11. From her he *(Prálambhá)* had a son named *Hajara*, who was the king of kings, and was embraced by *Lakshmí* (the goddess of fortune) herself, and whose feet were worshipped by every *Raja*.

12. He (Hajara) was like *Yúdhísthira* in truth; like *Bhíma* to his enemies; and like *Jishnú* (Arjúna) in battle; who,[§] though alone, yet was victorious over all his rivals that stood against him.

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[*] Note.—Particularly described in the Sreemutt Bhagavut, ch. 59.

[†] The word *Vandyá* when connected with *morning*, means adorable, and praiseworthy, as applied to the queen.

[‡] *Tejas* has two meanings; the *light* and *spirit*, or vigour, or vigourous persons; the former relates to the word morning, and the latter to the queen.

[§] This sentence is applicable to both Arjuna and the Rájá.

13. Lakshmí being as it were disliked by Vishnú (her husband) whose mind was in love with the Gopás (the wives of the cowherds) forsook his breast and came down to this individual with all the personal beauty of her sex.

14. This Lakshmí, as it were, determined in her mind that "because this conqueror is possessed of all personal beauty, as well as noble qualities of my husband (Vishnu), who has matchless might and a car-wheel or his hand, I shall surely become his chief queen, though I shall undergo degradation."

15. Lakshmí having ascertained this, as above, transformed herself into his chief and beloved queen, whose name was *Tárá,* and who was like a jewel of superior quality among all the females of her time.

16. From her (Tárá) he (Hajara) had a son named *Vanamála,* the king, who was prosperous, renowned, like the moon the source of the universal delight, and adorned with the jewel-wreath of all noble and royal qualities, and his footstool was borne by the crowns of numerous Rájás.

17. Because he was the worthy master of the territories that extended as far as the Vanamálá (lines of forest) near the seashore, the Creator caused him to be named Vanamálá.

18. He (Vanamála) resembled the *Sun* in the field of battle, by reason of his driving forth the darkness of the furious elephants of his vanquished foes.

19. Further, he was like the moon on the clear sky of the Naraka line, from which were sprung many kings, by removing the darkness of his enemies.

20. He (Vanamálá) who had by the force of his mighty scymetar been expelling all the Rájás, who were like thunder to the mountains of the powerful army of their respective enemies, made *Sree* (Lakshmi) the wife* of one husband.

21. Some Rájás, who though they were conquerors of their many rivals, yet from the fear of Vanamála's power took refuge with precipitation in extreme regions, and others in the heavens†.

22. The rest, who were forward to throw their sharp shafts over him in battle, far abandoned their lands in consternation.

23. The enemies who were gallantly forward in battle with their elephants, were subdued by him.

24. He who was devoted to (the gods?) bore the burthen of Nakusha (a Rájá of antiquity) by his faithfully repairing the fallen and the *Himála*-like lofty palace of *Hetuka Sulin* (the Siva of destruction) whose feet are worshipped by the multitude of gods, at *Kálántara*—and further, by adorning it with the images of domesticated elephants‡ and fair women.

25. His fame, which is whitest of all, exists in the regions of the serpents (Tragaloka) ever laughing to scorn (even) its eternal

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* Solely dependent on one, i. e. the king Vanamála himself; the meaning being, that he stayed the fickleness of fortune (Lakshmi) by the continuance of his success.

† Departed their lives.

‡ Note.—Literally "village elephants."

splendour, in extreme regions (surpassing in whiteness) the water cast off from the trunks of elephants with their long breathings, and in the firmament (deriding) the spotless and pleasant beams of the *moon* full in her digits.

26. He by his truth, gravity, greatness, power, liberality, and might, had far overcome the *Dharma, (Yúdhisthera)* the *sea*, the *mountain*, the *sun*, *Karna* the king, and the son of *Maruta (Bhíma)*.

28. The moon finding this world whitened by the *moon* of his fame, takes her rise as if with shame[*] even to this day.

29. The wife[†] of *Abja* (Brahmá) who[‡] is like an oblong pond on the firmament, as it were, sings his extended fame (praise) in Devene temples, to the sounds of musical instruments and songs, and in groves by the utterance of prayers and hymns of sacrificers.

30. Large quantities of gold, elephants, horses, lands, wives,[§] silver, and jewels were his usual gifts: and he, though very moderate of speech, yet was himself Vahubák.[||]

Because he gratified the appetites of the people of all classes, and was himself in company with the learned, numbers of most mighty Rájás had been constantly coming to him, mounted on their various elephants, horses, and litters, to pay the respects due to his highness. To Vanamala, who was skilful, the king of kings, very rich, and devoted to the feet of his parents, and whose mind was attached to the supreme Deity, was *Louhitya Sindhú* the sage[¶] as a friend.

Its water was made fragrant with the scent arising from the flowers dropped from the creeping plants moved by the long drawn breathing of the serpents, startled at the cries of the wild peacocks and various other birds reposing on the lofty trees of the eastern mountain, while all sides were occupied by the numerous elephants, horses, and foot soldiers of *Vanamala.*

Further, its streams were intermixed with the odorous water of the clouds, composed of the gashes of the Kálaguru trees (black aloe wood) burning by the conflagration of its adjacent groves.

The inhabitants near its banks were all delighted with the smell arising from the musk of the deer, which were in different places collected, grazing on the fragrant pastures of the Eastern mountain, and further of those that were in many places killed by the wolves, as well as by *Nature*, and were left unconsumed thereon.

Further, its streams were more sacred than those of others, from their continually washing the sides of the mount *Kámakúta,* which is inhabited on its tops by *Kámeswara* (a Siva) and *Mahá Gouri* (his wife) whose footstools are brightened with the crown jewels of all the *Súras*

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[*] The black spots that are generally visible in her, are usually described by poets as the marks of her disgrace and shame.

[†] Saraswatí.

[‡] I cannot conceive what the poet means by this metaphor.

[§] By his giving wives, is meant that it was his custom to assist those with expenses whom the want of money rendered unable to marry.

[||] This word is of two meanings, one who talks much, and of whom men speak much.

[¶] Here the river is personified as a sage. In Sanscrit the river Brahmaputra is said to have been a *male river*.

(gods) and the *Asuras*. And moreover it was turbid with the odorous substances which were besmeared over and washed from the high breasts of the bathing lovely females, and adorned on both the banks with boats or ships; which (boats or ships) were like the Velxá[*] females, adorned[†] with various ornaments; like female children ornamented with sonorous *kiukini*[†] (a girdle set with small bells);—like Várastrís (courtezans) holding[‡] chámara (chowrees);—like the wives of Dashavadana (Rávana) bearing the marks of Dashana[§] (teeth) round them;—like the Kámínis (wives) of Pavana (the god of wind) possessed of Vega[||] (swiftness);—like the women of Danuhánga (a nation) attractive of all minds;[¶] and like Devapális (inferior gods) ever existent above,[*] and whose (boats) Vega is *samvardhita,* (augmented or inflamed) like that of the Carnatic females by Ka*th*ínábhighátat[†].

Further, their *U'tkampa*[‡] is augmented like that of the girls dancing with their male companions.

There was a person named Bhíjjata, who was the illuminator of the Sándelya line,—liberal,—pious,—devoted to the gods, and studious in Yajúrveda, and its angas[§] (subordinate parts.) His wife named *Sabhráyeká,* who was pious, endowed with all the Brahmanical qualities, and descended from a respectable family, was married to him according to the *Bráhma Vídhí.*

To their son, who was himself a priest studious in the Vedas, possessed of noble qualities, and superiority, and whose name was *Indoka,* the king Vanamala has granted the village named *Abhíssúravátaka,* which is furnished with fertile lands, and the reservoirs of water, and the undermentioned eight boundaries on the west of *Trísrota* (the Ganga-river) for the virtue of his parents.

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[*] Name of a tribe. This Veshfsana (adjective) is to be applied to both the boats and the females.

[†] Oars at that time were generally bound with *Kinkinis* round them, as are now the paddles of snake boats.

[‡] Boats and ships had always been at that time beautified with chamaras and flags, &c.

[§] The persons of the wives of Rávana, who had ten mouths, bore the marks of as many lines of teeth. This when relating to the boats means that the earrings thereon were visible like the marks of teeth.

[||] This is applicable to both the boats and the wives of Ravana.

[¶] The boats were so beautiful that they were pleasing to all.

[*] Here the word *above,* means above the surface of *water* when connected with the boats, and *sky* when with the gods.

[†] Here the words *Vega* and *Kathindbhighdta* are both of two meanings. The former means amorous *lustre* and SPEED—and the latter *strong embrace* and *haste,* when they are in turn connected with the females and the boats.

[‡] *U'tkampa,* when relating to the girls, means a motion used in dancing; and tremulous motion when relating to the boats; i. e. when the boats are danced on by men, they appear as it were dancing themselves too by the pressure of those moving on them.

[§] The Angas are as follow:—*Sikshd,* or the science of pronunciation, and articulation; *Kalpa* the detail of religious ceremonies; *Vydkarana* or grammar; *C'hhandas* prosody; *Jyotish* or astronomy; and *Nirúkti* or the explanation of the difficult or obscure words, or phrases that occur in the Vedas.

A mode of marriage, the presentation of the bride, elegantly adorned, by the father to the bridegroom whom he has invited.

It is bounded on the west by *Dashalangasabha;* on the south-east by *Chandra;* on the west by Nakuvasava, and on the north-east by Dashalangala Sabhasa.—Samvat. 19.

Abstract Lineage of Vanamala. By Pundit KAMALAKANTA.

The first Baraha had a son named Naraka from the earth (his wife ;) Naraka had two sons named Bhaga-datta and Vajra-datta, and was himself slain by *Krishna*, who being affected by the mournings of his wife, made Bhaga-datta her son king of Pragjyotisha.

From his line descended Pralambha, who also succeeded to the Guddee of Pragjyotisha.

From his queen, whose name was Jivada, was born Hajara, who also had named *Vanamála* from *Tára* his wife.

NOTE *By Pundit* KAMALAKANTA.

Three letters of the third quarter next to the words *Armbhakrirat* of the first Sloka, which is in the Sragdhárá C'hhanda, have been obliterated, the three letters Súbhusha are placed in lieu of them.

Here the reason of inserting *ra* in the place of *rha* is, that the inhabitants of that place (of Assam) can not with ease pronounce the latter, and therefore they are liable to make-use of the former (*ra*) both in their speaking and writing.

At the end the word *Tresrotáyá*, which is the mistake of the writer, should be *Tresrotasa*, as Vanamála was himself master of even the territories situated on the banks of Gangá [it is probable] he personally went there, and after performing sacrifices granted lands to *Yágnekáchárya* on its western bank.

Granting lands with Támrasasána is said to have been reward of yága [ceremonies.]

All this is described also in *Sisupálavadha* [the work in which the death of Sisupala is described.]

Note on the above.

The early history of those tracts on the banks of the Brahmapootra which lie to the north-east of Bengal, and which are now for the most part either forest land, tenanted only by wild animals, or wastes partially reclaimed and inhabited by tribes nearly as wild as the beast of the forest, is unfortunately involved in singular obscurity. The soil of Assam Proper is of great fertility, its products are numerous, and the results of the industry of the inhabitants and of settlers, encouraged and fostered by the equitable rule, and efficient protection of the British Government, prove that the land is capable of supporting the densest population. The character of the extensive hilly country between Assam, and Cachar, and Munipore, would appear to be not dissimilar; and we in fact have the strongest proof that the whole of these tracts were at a former period thickly inhabited by a people far advanced in civilization. The immense earth works which traverse Assam forming at once dams for the retention of water, and commodious roads across the flooded country, the extensive ruins in Chardwar, (Jour. As. Soc. vol. iv. No. 40, April 1835,) the remains of the ancient city of Dhemapoor, in the Naga country, are not the only proofs extant of the power, wealth, and energy of the former inhabitants of these tracts. It is however very unfortunate that among the numerous remains already discovered, no inscriptions have been found, which could lead to conclusions as to their real history. Capt. Westmacott (formerly Assistant to the Governor General's Agent on the North East Frontier) has indeed in the able paper above alluded to, sketched from tradition, and such records as are extant, a history of the early monarchs who ruled at Pora in Chardwar; but as regards the general history of the country, we have little that can be looked upon as authentic. "The very numerous remains of stone temples," says Major Jenkins in a letter to me, "all completely overthrown (except some of quite modern date, erected out of the ancient structures) speak of long periods of prosperity, and great revolutions of which we are entirely ignorant. From one of the temples at Hajoo being frequented by pilgrims from all parts of Thibet, and Tartary, I imagine the Boodhist faith formerly prevailed in Assam, and this may account in part for the destruction of the temples. That faith was succeeded perhaps by the

Brahminical under the Pals (i. e. the Pal dynasty); they were swept away by the Koches, who probably were not Hindoos till they ceased to be conquerors, as was the case with the Ahoms, who with the Mahometans then contended for Kamroop, and both perhaps destroying the temples which fell into their power." I am strongly inclined to concur with Major Jenkins in the opinion he expresses as to the probable prevalence of Boodhism in Assam at an early period; its supercession by Hindoo invaders; and the consequent destruction of the temples now extant. The following extracts from the Mahabharat, and Roghuvanso, are of authority, as proving the early power of the Rajas of Prajyotisha, and their early wars. I owe both these quotations to Pundit Sarodhaprosad.

The following slokas as quoted from the 4th chapter of Roghuvanso.

"81st. While Roghú crossed the river Louhitya Sindhu (Brahmaputra) the king *Pragjyotisha* (Kámroop) as well as the kálágúrù trees* to which were tied the elephants of Roghú —— trembled.

82nd. How could he (the king of Pragjyotisha) stand forth against the advancing army of Roghú, when he could not withstand the rising vast dust of his cars which entirely covered the sun, and were like a day dark with clouds, but without shower.

83rd. Him (to Roghú) who surpassed Akhandala (Indra) in power, the king of Kámárupa visited with all his elephants, which were exuding juice from their temples, (i. e. they were in a state of fury) and which he invaded others with. The king of Kámárupa worshipped the shadow of the feet of Roghú, the ruling deity, of his footstool with the flowers of valuable jewels.

Mahábhárat Bhishmavahda Parava, Section 75.

प्राग्ज्योतिषस्तु सहितो मद्रसौवीर केकयैः
उरस्यभून्नरश्रेष्ठ महत्यासेनया वृतः ॥

O superior to man, the king of Prágjyotisha is on the centre of the entrenchment attended with *Madra*, *Souvéra*, and *Kekaya*, and his numerous army.

Section 112.

ततः प्राग्ज्योति षो राजा माधवस्य महद्धनुः
चिच्छेदनिशितधारेण भल्लेन कृतहस्तवत् ॥

Then the Rája of Pragjyotisha cut off the large bow of Madhava with his sharp bhalla (a species of spear).

Amid the uncertainty I have described above, it is gratifying to find something in the shape of documentary evidence, speaking to a direct historical fact, as in the case of the copper plate which Captain Jenkins has enabled me to present to the readers of the Journal. With this, and the other plate purporting to be a grant by Dhurmpal, we have two documents bearing respectively the dates 19 and 36 of an unknown æra. I will endeavour to prove that this æra must have been the one adopted by the Hindoo conquerors of Assam as their own; a fact which would strongly corroborate the more than plausible supposition that the former possessors of the land whom they subdued, were Boodhists, or at any rate of a different faith from their own.

For this purpose however I must in the first instance express my reason for differing with the opinion which would, I think, destroy the local application of the æra, the idea namely that the grant now before us related to lands *on the banks of the Ganges*, or real *Gunga*, an opinion which it will be seen is held by Kamalakanta, as also by other capable authorities whom I have consulted. My views could not be better expressed than in the following extract from a note addressed to me in answer to a reference on the subject by one of our members, Baboo Prosunno Comar Takoor:—

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* The black aloe wood.

"With reference to your note with its enclosures on the subject of the Assam
(1) তাম্রপত্র Tamba Putur, (1) containing grants of land on the banks of the
(2) গঙ্গা Ganges, (2) I have much pleasure in communicating my thoughts
on the subject, and which I hope will clear up the mystery,
namely how the Rajah of Assam could grant lands on the banks of the Ganges.

"It appears from Captain Jenkins' letter, that the grants were discovered near the station of Tezpore, in the Durrung division, and that those grants specified the lands as
(3) ব্রহ্মত্তর 'Burmutter' (3) by 'Dharmopala'; (4) and each grant with the
prefix of the figure of Ganesa(5). You will find on referring to
(4) ধর্ম্মপাল Dr. M'Cosh's Topography of Assam, page 93, that 'the
(5) গণেশ northern central Assam, or Durrung, or Tezpore, (the place
of the discovery of the grants) is bounded from Nowdowar on
the east by the *river Burili.*' Here is the mystery. The river *Burili* is called
(6) ভরুলি in the language of the country *Bhurili*(6), and the sacred
name for the same river is *Vasishty Gunga*, (7) or Ganges,
(7) বাশিষ্ঠিগঙ্গা which you will be able to ascertain from the learned people of
that country through Captain Jenkins. Thus the land alluded to in the grant must be on the banks of *this* Ganges; and *not* of *ours*. Gunga, corruptly called Ganges, is not the exclusive name for our river. For instance, the latter should properly be
(8) ভাগীরথীগঙ্গা called Bhagirutty-Gunga. (8) And there are others, such as
Shutu-Gunga(9) in Orissa, Boory-Gunga, (10) at Dacca, Tool-
(9) শ্বেতগঙ্গা see-Gunga(11) at Rungpore, and so on, in various places.
(10) বুড়ীগঙ্গা And the Sanscrit writers of the grants and Sanscrit authors,
particularly on the occasion of compiling poetical compositions,
(11) তুলসীগঙ্গা for the sake of metre, emphatically omit the proper epithets applied to the word Ganges. This may account for the word Ganges being used in the grants with the omission of the adjective *Vasishty*.

"The inference of the grants of the land being on the banks of the Vasishty Gunga, and not on ours, is further supported by the name of the granter, namely, Dharmapala. This sovereign of Assam was distinguished for having embraced the Bhraminical
(12) ব্রাহ্মণ religion, and invited Brahmins(12) from Gour(13) to his court
north of the Burramapooter, and also from Mithelâ(14) to co-
(13) গৌড় lonise in his country. Thus it is quite natural that from the
veneration in which he held the ministers of his new religion,
(14) মিথিলা he granted to them, and generally to colonists of the same sect,
lands free of rent, which accounts for the three grants discovered near Durrung, situated *likewise* on the *north* side of the Burramapooter; and many others may be found in time. It may be conjectured that the monarch had his capital situated in the vicinity of Tezpore, perhaps in some place near or at Chardwar, being one of the four divisions of Durrung, as we still find the ruins of ancient temples and other edifices on that spot (vide Journal of the Asiatic Society, April 1835, page 185.)"

I perfectly concur in thinking that this explanation relieves us of the necessity of supposing Vanamala to have possessed lands on the banks of the real Gunga, (carrying thus into Bengal Proper the name of a ruler, and an æra unknown there), and further of being compelled to admit a violation of the rule, which all experience of the discovery of ancient copper grants teaches us, namely, that the *Tamba patur* is invariably found upon the land to which its contents relate.

Taking Hujara, or Vanamala, as a Raja ruling only in Chardwar and its vicinity, we have next to trace his existence with reference to what of history is still extant as regards the ancient Assamese dynasties. The late Captain Pemberton, whom I consulted on this point, was of opinion that what Mr. James Prinsep, (Useful Tables, p. 118) calls the Induvansa dynasty, "though," to use Captain Pemberton's words, "it should have been the Ahom, or Ahong dynasty, and not Indu," was to be found in the list composing the Pal dynasty, commencing with Chukapha in 1230 A. D. "There can be no doubt that this race of kings by whom the conquest of Assam was effected in the thirteenth century crossed the mountains known as the *Pal kole*, or *Pal* mountains, which separate Assam from the mountainous region on the western frontier of China, near the sources of the Irawaddee river of Ava, and we may fairly conclude that the term *Pal* has been applied to them from the circumstance of their having first poured down upon the plains of Assam from the passes of the *Pal* mountains. Certain it is, that they were a branch of the great Shan tribe which under various modifications occupies the whole tract of country between Munipore and Yunon, extending down to Siam."

There is, I think, little doubt but that the so-called Induvansa dynasty were the Ahom conquerors, (though not A. D. 1230) of Assam; but they cannot be identical with the Pals, because we have before us evidence of Dhurmpal's being a Hindoo Raja, and we know that neither were the Ahoms in fact Hindoos, nor could they be so, coming whence they did; there is moreover no trace of Hindoo religionism among their descendants. Putting this supposition therefore aside, I will take up Captain Jenkins' list of the Pal Rajas, which Mr. James Prinsep seems to have considered in a great measure apocryphal, as he does not insert them in his tables, and indeed notes, with marked incredulity, the tradition of Dhurmapala having brought Brahmins into Assam from Gaur, a fact however proved by the plate granting the Maha Rudra Dewalee, and proved further to have been a practice with his predecessors by Vanamala's grant. In Captain Jenkins' list we have after Ramchundra (a Hindoo?), the word *jaintee*, which Captain J. suggests may allude to the country of Jainteah, but which I am inclined to think has reference to the *conqueror* (*Jynti*, or *Jytari jy—victory)* who is noted by Captain Westmacott, (Journal Asiatic Society, vol. IV. No. 40) as follows, "Shribahu. ninth sovereign of the second dynasty, was vanquished by Vikramaditya, and was succeeded by *Jytari, a pious Chhatri from the Dekhan, who overcame Kamroop,* and on ascending the throne assumed the title of Dharma-pala." Now there is nothing more natural than that a Hindoo leader of the military class, successful in his attack on a foreign land, should be emphatically called *jytari*, "the conqueror," or that having established the religion he professed(?) in the country, he should take a title *(Dharma pala)* expressive of his fosterage of the true faith, giving thence a title to his dynasty, were it not, as I shall show, already peculiar to one whence he sprang. A descendant of his, according to Capt. Westmacott's authority, by name Rama Chundra began his reign A. S. 1160, (A. D. 1238-9) "and is the first prince the date of whose accession is commemorated in the volume," whence the authority is taken, and which makes him twenty-fourth sovereign of part of ancient Kamroop, and the eleventh of the third dynasty of its kings. Chundra Pal, the seventh from Jytari in Capt. Jenkins' list, may be identical with this sovereign, and the notice of the date of his accession, according to the ordinary æra, may have been consequent on his having been the first to abandon the custom of dating by what we may call *the Pal æra*, two dates of which we find on the Assam copper plates, and which must certainly have fallen into disuse at no remote period after its establishment, the dates on the grant being the first notice we have of its existence. Now it is worthy of remark, how well these dates seem to apply to the list of Rajas in Capt. Jenkins' Pal dynasty, allowing the fair average of 12 years to a reign, and beginning with Jytari, its founder. We have after his immediate successor, Japandu Pal, (Prulumbha? v. 7. Sloka of the inscription), the name of Hari (Hujara?) Pal, in whom we may reasonably recognise the Raja surnamed Vanamala, who in the year 19 of the dynasty of which he is third, granted lands to Brahmins on the Vashishty-Gunga; he is immediately followed by Dhumba, or Dhurma Pala, one of whose grants has been found with the date 36 of the Pal æra. Thence to Rama Chundra, or Chundra Pal, we have only *two*, instead of, as should be the case by Capt. Westmacott's authority, *six* Raja's names, and from

Rama Chundra (A. D. 1238) to Sukanangka, or Sukrank, son of Gujanka, or Gujank according to Capt. Westmacott, with whom the Jytari dynasty expired (A. D. 1478), we have 13 Rajas occupying a period of 240 years, at an average reign of 21 years and a fraction, which is rather above the ordinary admitted chronological average. It may however be, that names after, as well before, Ram Chundra, or Chundra Pal, may have been omitted. In any sort, the assignment of a date to the Pal æra in our own must be mainly conjectural; but taking Major Jenkins' list as correct, at the average of 12 years to each reign, from about the death of Jytari, when I suppose the Pal æra to begin, to the accession of Chundra Pal in A. D. 1238, we should have it commence at about A. D. 1178, or, if four additional reigns be admitted, according to Capt. Westmacott, A. D. 1130. It remains for my readers to consider whether they would suppose it likely that Hindooism had been established prior to that in Assam (as the apparently fabulous tradition would go to prove), or whether it is not more correct to conclude, that it made its way into the country about that period.

I need not remark on the confusion of the lists of Rajas. Shubahu, whom Jytari succeeded by conquest, according to one account, is possibly the *Subahu* of Major Jenkins' list, between whom and the conqueror 10 names intervene. It is much, in such absence of authenticity, to arrive, as I trust we have done, at even some approximation to the truth.

I should however omit one most remarkable point regarding the Pal Rajas of Assam, did I fail to note that the Rajas of Bengal (having their capital at Gaur) were themselves a Pal dynasty, and that the name *Dhurma Pala* has been found on two copper plates, the Monghir and Dinajpor plates, which record kings of that race, both evidently referring to the same individual. The date of this potentate is given by Abul Fuzl, A. D. 1027, which differs as regards Dhurma Pala from our calculation, and thus, independently of the discrepancies of other names in our present and the former plates, disproves the identity of our Dhurma Pala with him of Gaur. Still however it is very plain that a *Pal* Hindoo conqueror of Assam, who brought Brahmins from the capital of that country, must have belonged to that family, though he was, it would I think appear, but a junior branch, or off-shoot from it.

Boodhism therefore was expelled from Assam by Hindoos from Bengal, but I cannot help adding a few more words on the subject of the history of Assam, in order to show that the subsequent Koche and Ahom invasions must have so wholly destroyed the Hindoo dynasties above noted, as to lead to the belief generally entertained among the people of the country of the introduction of that religion into it at a period so recent as the last century. The following comparatively modern inscriptions, which the Society owes to the kindness of Lieut. P. H. Sale (Engineers) are printed without literal translations (although I took care to have them made), as Lieut. Sale's abstract of their contents is quite sufficient for all purposes required. I should mention, that I found Lieut. Sale's letter among the papers made over to me, when I took charge temporarily of the Secretary's duties. His communication, though long unnoticed, has not been made in vain, and its publication will, I trust, lead to his again addressing the Society. His letter is as follows :—

"I beg to send you the accompanying facsimiles of inscriptions, which I took in the neighbourhood of Gowahatty, when I passed through that city in January, 1838. They can lay no claim to antiquity, and I doubt not that I have been forestalled; however, they throw light on the period when Hindooism first extended into the province of Assam. The Kamakhshya temple is said to be the first Hindoo place of worship erected in these parts; the renown of its great sanctity extends far and wide, and many pilgrims seek the purification of their souls at this shrine. The temple is situated on a hill, about 400 feet high; on the ascent to it is a colossal figure of Betal carved upon a large piece of rock, and on the top, near to the great temple, is a figure of Hunooman. At the foot of the hill a small figure of Gunaish is cut on a boulder, by the side of which is the inscription marked No. 1. I perceived no inscriptions on the other stones. No. 2 is an inscription on the Dhol Mundip of the temple named Asakrunta, on the opposite or right bank of the Burrumpooter. No. 3 was taken from a stone by the side of a tank, about two miles from Gowahatti, on the Nowagaon road. The copies on the English paper are the inscriptions within the temple of Kamakhshya, to which I had no access, and were taken for me by the Suddur Ameen, Juggoo Ram Phookaw; all the inscriptions, I believe, are in the Assamese character.

"I might enter into a long description of the picturesque situation of these Mundurs, but it might be out of place, and I shall rest perfectly satisfied, if the copies may prove of the slightest use."

৪ লোকানুগ্রহকারকঃ করু
ণয়া পার্থো ধনুর্ব্বিদ্যয়াদানে
নাপিদধীচিকর্ণসদৃশোমর্য্যাদ
য়াস্তোনিধিঃ । নানাশাস্ত্রবিচারচা
রুচরিতঃ কন্দর্পরূপোজ্জ্বলঃকামা
খ্যাচরণার্চ্চকোবিজয়তে শ্রীমল্লদেবো
নৃপঃ ॥ প্রাসাদমদ্রিদুহিতুশ্চরণা
রবিন্দভক্ত্যাকরোতুদহ্জোবরনীল
শৈলে । শ্রীশুক্লদেব ইমমুল্লসিতোপ
লেনশাকেতুরঙ্গগজবেদশশাঙ্কসংখ্যে ॥
তস্যৈবপ্রিয়সোদরঃ ॥ পৃথুযশাবীরেন্দ্রমৌলিস্থ
লীমানিক্যং ভজমানকল্পাবিটপী নীলাচলেম
ঞ্জুলং । প্রাসাদং মুনিনাগবেদশশভৃৎশাকেশিলারা
জিভির্দেবীভক্তিমতাম্বরোরচিতবান শ্রীশুক্লপূর্ব্বধ্বজঃ ॥

"If we leave out the ornamental parts of the poetry (being praises of the princes and the goddess) the inscription informs us that the principal temple of **Kámákhyá** has been built by Shukla Diva and Shukla Dhwaja, the younger brothers of **Malladiva** (the king of Behar) in 1487. Equivalent to 1566 A. D."

শ্রীরামঃ

স্বস্তিশ্রীসুরাসুরবন্দিতম
হিষাসুরমর্দ্দিত পীতরুধি
রোন্মত্তযোগিনীগণাহৃতগী
তবাদিত্রনর্ত্তিতশ্রীশ্রীকামা
খ্যাদেবীদোলনাদিবিনোদ
বিলাসায় ধৈর্য্যগাম্ভীর্য্যবীর্য্য
বিবিধদানবিতরণকল্পদ্রুম

সমস্তুপালচূড়ামণিকামাখ্যা
চরণপরায়ণস্বর্গেশবঙ্সাব
তংসশ্রীশ্রীপ্রমত্তসিংহমহারা
জাধিরাজাজ্ঞয়া শ্রীতরুণদু
বরাম্বহংফুকনেন নীলগি
রৌসিদ্ধকামেশমধ্যেকেদা
রক্ষেত্রেকস্তুংসবদোলোয়
মকারিনেত্রগোত্ররসাবনি
শাকে ১৬ ৭২

"This inscription states, that by order of Shwurgu Diva Pramatta Singha, the king of Assam (his viceroy or Navab) Taruna Duvara Bara Phukkan, built the Doljatra mandap of Kamakhya in Shakabon 1672 Equivalent to 1751 A D"

শ্রীরামঃ

৭ স্বস্তিস্মরহরচরণস্মরণবলিতপ্রাজ্যরাজ্যলক্ষ্মা
রক্ষণবিচক্ষণদক্ষিণদোর্দ্দণ্ডাখণ্ডলাখণ্ডপ্রচ
ণ্ডপ্রতপানলকবলিতবলিতারাতিতিমিরনীতিরত্ন
রত্নাকরনৃপনিকরকিরীটকূটকোটিকরম্বিত
পাদপীঠপ্রবরযশোজিতসুধাকরপুরন্দরকু
লামলকমলদিনকরস্বর্গদেব শ্রীশ্রীমৎপ্র
মত্তসিংহমহীমহেন্দ্রাদেশতত্তদীয়চরণস্বর্ণ শ্রীপ
র্ণজ্ঞায়মানপ্রধানপ্রধনসীমনিস্সীমভীমবিক্রম
গাম্ভীর্য্যোদার্য্যমর্য্যাদাদিগুণগণগরিমমহামহিমা
ক্রমহিতনীতিক্রমস্বর্গাগমনাবধিস্বর্গদেবসেবী
বংসবিভূষণশ্রীযুক্ততরুণদুবরাম্বহংফুকনেন
দুর্গাসরোবরমিদমখানিবসুরসরসেন্দুশাকে

"This inscription (near Ganesha) informs us that by order of Pramatta Singha, the Raja of Assam, (his viceroy or Navab) Taruna Duvara Bara Phukkan, did dig up the Durga Sarobara (or tank of the goddess Durga) in Shakabon 1666 Equivalent to 1747, A D

The similarity of the name (No. 1) *Shukla*, to that of *Chukra* Dwaja (noted in Useful Tables as Raja of Assam in 1621) would lead me to conclude that the persons are identical, especially as the descent of the late Assamese reigning family from that of Cooch Behar is well known, were it not that Mr. Prinsep's date, attested by dates on coins, and that of the inscription, differ by fifty-five years

Memoir on the Hodésum (improperly called *Kolehan.*)—*By Lieut.* TICKELL.

(Continued from page 709.)

The Hos villages are in general unpicturesque, owing to their building on high barren spots, where the trees attain no size; they are very irregular, each house being separated and hedged in by itself, with its own little plot for planting maize, til, or tobacco; a street for suggers, generally runs through the village, and in the centre, an open space of turf, shaded by two or three tamarind trees, contains the slabs of stone under which the "rude forefathers of the hamlet sleep." On these stones the people assemble daily to talk or lounge, when there is no work to do in the fields. They scarcely ever build by rivers, preferring the vicinity of some small spring. The beautiful Byturnee, every wind of whose stream would be a subject for the artist's pencil, or the poet's pen, runs its crystal waters through regions of deserted forests, where the vastness of canopying trees, and the luxuriance of wild vegetation, snow the richness of the soil; while four or five miles inland, the country is populous and well cultivated. I have never satisfactorily ascertained the reason of this bad taste: but among other causes, I have been told it was for fear of their little children tumbling into the water! Whatever it may be, the open, barren spots they select are more healthy than those selected for beauty would be.

A Hos if he be worth three or four ploughs, lives in a very comfortable manner. The houses of the Moondas and Mankees are substantial and capacious, built so as to enclose a square. The walls are of stout and well joined stockading work, covered with mud, and neatly "leeped" or plastered with cow-dung, or chalk and water. The principal building is commonly ornamented with a verandah *(Pindegee,)* supported on carved wooden pillars, and covered with an excellent thatched roof. It is divided into three compartments—a sleeping room, an eating room, and one for general stowage. Opposite this house, and about thirty paces off, is another of ruder construction, for servants, travellers, or guests, and the flanks are joined by "Byres," or cow-houses, a granary, and often a pig-stye. In the centre of the square generally stands a pigeon-house, built of logs, on high timbers, neatly thatched over. None of their villages are extensive, owing to the dislike they have to congregate together, for fear of fire or contagious diseases ; so that the crest of almost every rising ground throughout the country, is occupied by a few scattered houses. The nomad tribes of Hos, who inhabit the hilly tracts, are obliged to move every third year, to make fresh clearings in the forest. The soil in these places is very rich for the first sowings, but not being manured, gets exhausted in three or four years.

The Hos wear very little clothing; even the most opulent among them, who have quantities of cloth and ornaments, prefer keeping their finery shut up at home, for the purpose of adding to the pageantry of their funerals. Their raiment consists of a doputta, (which is gladly thrown off, unless on state occasions) and a neat narrow dhotee, called " Botoé." They wear the hair oiled and combed backward, and fastened in a " toupee" behind, but unlike the Oráous and Moondas of Chota Nagpoor, adorn their heads with no ornaments. The men however are fond of earrings and small beads, or plaited necklaces and bracelets ; most of them also wear charms against snakes, tigers, or diseases, tied round their necks. These the Hindoos in the neighbourhood make a profitable trade of, in selling to them. The women of the lowest order go about in a disgusting state of nudity, wearing nothing but a miserably insufficient rag round the loins, at the same time their breasts and necks are loaded with immense bunches of bead necklaces, of which they are extravagantly fond. They perform the hardest duties in the fields, digging, shovelling, weeding, drawing water, and getting in wood from the jungles. Constant exposure and work renders them prematurely shrivelled and ugly ; the young women and girls of the better classes are however a striking exception. They are well, and at times handsomely dressed, with a tasteful proportion of ornaments, without the stupid shyness and false modesty thought proper among Hindoo women ; they are becoming and decorous in their manners, most pleasing in their looks, and doubly engaging from the frank and confiding simplicity which true innocence alone gives ; some few of them are very pretty, although more roughly cast than Hindoo girls. Their open, happy countenances, snowy white teeth, and robust, upright figures, remind one of Swiss peasant girls. Prostitution is quite unknown among them, and no more restraint is placed on females than in our own country.

The men are fine powerful fellows, and while young, very handsome. The early use of the bow expands the chest and sets the muscles while yet mere boys, and their passion for the chase, which they pursue over their steep and rugged hills, brings their lower limbs into a state of training which the best "Phulwan" of the plains of India might envy.

The Hos are keen sportsmen, a fact which the "Sahéb Lōg" at Chyebassa soon found to their cost; their Manton's and Purdey's, and Westley Richard's, might as well have been left unpurchased, for scarcely a living thing in the shape of game could show itself in the neighbourhood, without the country being up in pursuit. In the quail season, when the "d'han" is cut, every herdsman tending his cattle has his hawk on his fist, besides large parties of youngsters from the villages, who keep close ahead of the cattle, and the instant a quail or partridge rises, the nearest "Reechee" or "Chikra" cuts short his existence. I have frequently, returning home with an empty bag, met parties of them with provoking bunches of dead quail in their hands. On these occasions they would laugh heartily at the success of their system over mine, but generally end by offering me half of their spoils. My retaliation used to be in the snipe (khéts) These birds, they confessed, their hawks could not overtake, and a successful right and left shot would restore the credit of the "Boondookoo."

From the burning of the grass till the new crop becomes too high, i. e., between January and June, they scour the jungles in large parties, and at uncertain periods, for wilder game, surrounding and driving to a centre the deer and other animals. But the grand meeting is in May, about the "Cheyt Purub," when people of all sects and classes repair to the hills north of Singbhoom. The preliminaries of the "Hankwa" are arranged by ambassadors and emissaries from Singbhoom, the Kolehan, and the Jungle Mehals, and vast multitudes draw in from every quarter, from Sikrbhoom, from near Bankoorah, and Medneepoor, on the east, and from the borders of Chota Nagpoor on the west. On the given day, these crowds, extended in lines, draw towards a common centre, sweeping the Jankeebooroo hills and other ranges which reach from Chota Nagpoor to the Soobernrekha river, separating Tamar from Singbhoom; as the lines approach each other, the slaughter commences. The uproar is difficult to describe, and the scene the wildest imagination can picture. Those deep secluded vallies, those barely pervious dells, the huge solitary hills tops, buried in one vast sheet of pathless jungle, which except on this annual occasion are never visited by man, now swarm with countless hordes. In front of them the different animals pass and repass, bewildered by opposing hosts. The huge gowers rouse from their noon-day retreats, and stalk with stately steps along the hill side, till infuriated by the increasing din, they rush through the forest, heedless of rock or ravine, and rending the branches in their ponderous flight—the wild buffaloes thunder across, brandishing their immense horns, stamping and wheeling round their young ones ;—the neel gyes gallop past like a charge of cavalry. The stately saumer, the beautiful axis, the barking deer or muntjac, dash along, clearing the copse wood with flying bounds, and suddenly stopping with erect ears and recurved neck, as the tainted gale warns of danger a head. The fairy-like "Orey," or small red deer, with noiseless feet comes skimming over the tangled underwood, skipping in wild starts to the right and left, and sorely bewildering a host of t'hakoors, rajas, and their body guard, who perched upon mechans, (scaffolds) in vain try to bring their lengthy matchlocks to bear ;—with snort and puff a 'sounder' of pigs scurry through. The redoubled uproar from without, draws the attention to something which has excited the beaters. The reeds and grass are seen to wave, as if some bulky form were sliding through them, and at length, loath to leave the haunts which had concealed him so long, out comes the tiger, with a lumping, stealthy trot, crouching to the earth, with ears quivering and turning to catch every sound. He has soon passed on into the leafy depths, from which his hollow growl may be occasionally heard. And last of all, as the peacocks begin to mount into the air, and the jungle fowl with noisy cackle take wing, a loud sonorous grunt or shout ushers in the sturdy old "Bhaloo," who forced from the friendly shelter of rocks, comes bundling over the ground, and shaking his sides in a heavy gallop, oft stopping, wheeling round, and threatening his enemies. The reports of matchlocks; the "click" of the arrows striking against trees; the shouts of the multitude; the roars, screams, and groans of the animals; the piping of flutes; the beating of drums; the braying of trumpets, reach their climax, and the multitude, composed of all classes and sorts, meet near the raja's mechan to compare notes of the sport. Here are the ever-dancing and singing-Sontals, dressed out in flowers and feathers, with flutes ornamented with streamers made of pith ; the wild Kurrias, or hill men, from the Luckisinnee hills in Borañbhoom ; the Koormees, Taunties, Soondees, Gwallas, Bhoomijes, &c, with sonorus 'dammas' or kettle drums, and other uncouth music, armed with swords, bulwas, and bows and arrows of every description ; the Hos, simple and unpretending, but with the heaviest game bags ; the little ill-featured Tamarias, with spears, shields, and matchlocks ; the Nagpoor Moondas, with huge ornaments stuck through their ears, indifferently armed with bows and arrows, clubs, or bulwas ; the southern Koles, and the far comer from Sarnda with their chain earrings and monstrous pugrees : the Bhooians with their long bows ornamented with horse tails, or the feathers of the blue jay, and their immense barbed arrows ; the Pykes of the rajas, koonwrs, thakoors and other zemindars with their shields, tulwars, powder-horns, and immense matchlocks with rests, dressed out in all colours ; lastly, the rajas, thakoors, &c. themselves, with guns of Delhi manufacture, prodigious scimetars, or an occasional "Angrezee bundook," the gift of some sahib long passed from the scene, seldom fired, but kept for show in a venerable clothing of rust. Mid great shouting and gabbling the parties claim and carry off their several heads of game, or wrangle for the arrows sticking in the carcasses and elsewhere about ; all then repair to the banks of the nearest stream, where they form their temporary camps ; fires are lighted, the game is cut up, bundles of provisions unpacked, and for a mile or upwards along the wooded vista, the clear bright water reflects innumerable groups, which on either bank are cooking, eating, drinking, sleeping, laughing, or dancing.

Such is the faint description of a scene in which I have often mingled, and look back to with much regret ;

"'Tis merry, 'tis merry in good green wood,"

and the sports of these simple people in their sylvan retreats must afford the highest excitement and pleasure to all in whom to a passion for field sports is joined a love for the beauties of nature, here seen in her wildest and most striking attire.

These people have no amusements, with the exception of their hunting and fishing excursions, and the dancing and singing during their festivals. The youngest boys stalk about birds nesting, armed with a small bow and arrow, or employ themselves fishing. Though cheerful, they are as manly as their fathers in appearance, and I have never seen them engaged in any game, nor am I aware that any are known by them. In Hindoo villages, groups of children may be seen constantly engaged in some puerile amusement, such as trap and ball, prisoner's bars, peg-top, mock processions, &c. ; and the older ones in fighting cocks, quail, or rams. But these appear to afford no pleasure to the Hos; on calm summer evenings they are fond of assembling at their doors to listen to the flute, the girls sing in concert, the younger ones go through the quiet demure dance of the country, and papa and mamma sit aloof looking approvingly on, and solacing themselves with a little " Eely" ; while twilight lingers, their happy laughing voices, or the wild humming melody of their songs is heard ; but no squabbling, no abuse or high words, no " Gallee," none of the vile traits of common Hindoostanee life, ever offend the ear.

The language of their songs is poetical and pleasing ; it would not however bear translation Ideas which in the English idiom would be dull and stupid, and words which would be common place, in the smooth mellifluous accents of their dialect sound interesting, and often beautiful. A few of their songs I have copied and translated at the end of the vocabulary, &c.

Their dances are almost similar to those of the Dhangurs, Santals, and other jungle people. The men and musicians are generally in the centre of a large circle composed of women, locked with their arms round each other ; the circle is headed by the eldest matrons, and brought up by the smallest girls, a space being left between, they *chassez* backwards and forwards, keeping exact time, and going slowly round the men in the centre. Sometimes another large circle of men forms outside them, but all step with the greatest exactness to the tune, and the effect is most singular and pleasing. The " Magh Purub" dance, when they go scampering through the villages four or six abreast, and in close column, is very like our " Gallope," and when the performers are well dressed, I have seldom seen any thing prettier.

Marriage Ceremonies.

When a young man has seen a girl who pleases him, he goes home and calls together four or six respectable men of his acquaintance, to whom he communicates his wishes respecting her. They institute inquiries regarding the means, wealth, and respectability of the family, and if accounts are good, they set off to the girl's parents' house, taking a brass kutorah or a p'hool one a present, and tell the parents the young man's wishes. On their way to the house they note carefully all the signs that occur, as the flight of vultures, the song of the "ooi oe" or Mindanao thrush, and the appearance of jackals, taking care they should remain on the same hand they were met with. Should the conference terminate favourably, the deputation is feasted and kept one day at the house, and the signs they have noticed on the road are recounted and carefully expounded by men versed in augury. The next day the deputation returns again, noting the signs on the road ; and in this manner they pass and repass between the houses of the parties, bearing messages and settling the marriage terms. These go-betweens are called "Dootáms." People also from the girl's side go to the bridegroom's, taking note in their journeys likewise of the signs on the road.

Should the omens be interpreted to be very bad, to portend death, or disease, &c., they determine to break off the match for a time, and appoint a meeting the next day, with "Eely" and fowls, to have a sacrifice on the road, half-way between the bride and bridegroom's houses. The next day they accordingly, to the number of four or six on each side, meet half way, and go through the sacrifice to the "Singbonga," after which they tear a saul leaf in two between them and declare the marriage null and void. The whole ceremony is concluded by a prayer to "Singbonga," begging that if the parties still wish to be united, he will vouchsafe to give them better omens the next time they negociate.

After some time the Dootáms from the bridegroom go again to the bride's house, this time there is no notice taken of tokens; they give notice that the bridegroom with his father and mother are coming on a visit. A day or two afterwards, the young man with his parents set off, and are received at the bride's house, when mutual inquiries as to property, possessions, and the desire of the parties for wedlock, are again set on foot. All being satisfactorily answered, the parents settle the price to be paid by the bridegroom's father. This is generally twenty, thirty, forty, or fifty head of cattle, according to the old gentleman's means ; sometimes, when the requisite number of cattle cannot be paid, rupees, goats, sheep, or dhan, are given to make up the number. For every thirty head of cattle, one plough of bullocks and a buffalo, also a few brass pots, &c. are given over and above the bargain.

After this visit, people from the bride also go to see the bridegroom, along with the girl's parents, and a feast is given them, after which the cattle, and such other things as were agreed on are produced, and the parents of the bride settle the day they are to bring her to her husband.

On the day fixed, the bride is led to the bridegroom's house, in procession, with a numerous retinue playing on flutes and drums, and dancing; on approaching the bridegroom's house, he meets her in like fashion, and leads her towards his house. The bridegroom is mounted on a man's shoulders, with a drawn sword in his hand.

When the whole party have come in front of the bridegroom's house they halt, the bridegroom's mother, or aunt, or the nearest female relations bring a low wooden stool " Gandoo," on which they wash the bride's feet, and her party then retire with her to where they have taken up their quarters for the night. Provisions are then sent to the whole party, and to the bride a cock, on account of her being about to enter the house; this is called " Dooartaïoom seem ;" also " Chindee seem" or a fowl, for the bandage of her hair, which is to be untied and dishevelled the first night; also four pye of dhan, and a handia of Eely, called " Ajee hanar," which is for the bride's sister; also at midnight Eely, called " Talla needa eely" is sent to the party, and dancing and singing is kept up till morning.

The next morning the bride presents to the bridegroom for every head of cattle that has been given in price for her, a handia of eely, a pye of dhan, and a pye of rice; this is called " Doob gandoo eely, Baba, and Chowlee," being given because the bride is to be seated on a mora of dhan, (a seat is called Doob gandoo); of all this, one half is sent back by the bridegroom, also a goat called, " Jóm is sie merom;" also a rupee's worth of necklaces, " Jom issin hissïr"; also one rupee of cloth for her mother, called " Enga bagé lijjia". after feasting and drinking, the bride's party rise, and with singing and dancing bring her to the bridegroom's house and seat her on a mora of dhan, where oil is poured on her head, and a leaf dish of boiled rice and meat, dressed in the bridegroom's house, called "Jom issin," is brought her, which she touches with her hand, and thereby declares herself of her husband's caste. She is then left in charge of the bridegroom's female relations, and the ceremonies end by all the parties dispersing home, and leaving the happy pair to themselves.

Signs and Omens.

If a vulture, crow, Mindanaó thrush, Indian magpie, oriole, woodpecker, partridge, jackal, fox, deer of kinds, hare, bee, snake, especially the Covra, pass behind the Dootám, or messenger, he will die.

If a Cadis, " toorpoo cheedoo," cross in front of the Dootám or messenger (negociator), it portends the death of the bride in childbirth.

Should an ichneumon fly, " koonkal ho," drag a large spider " bindee ram," across the road, it portends the bride will be carried off by a tiger the very first time she goes to fetch wood or water.

The same omen, if a hawk or kite of any kind stoop and carry off a bird, fowl, or lizard, from any side.

A syrus " hoor, or vulture, deedee" crossing the road flying singly in front, portends the death of the father or mother, according to the sex of the bird—of the bride if near her village, of the bridegroom if near his.

If the great wood-hawk, " booroo queed," hover over head, it foretells the death of mother and son at childbirth.

If the deputation meet a toad, " roto poto chokey," it portends that the bridegroom's father will be bewitched.

If a flying squirrel, " oral," call out on the right or left hand, before or behind, the marriage is stopped directly. The same if a parakeet, " meerov," (large ringed kind) scream.

Should a branch fall from a tree without apparent cause, such as being cut, or rotten, or worm-eaten, it portends the certain death of the parents of both parties.

If the tumble dung-beetle, " eeooroo," be met with rolling dung along, it threatens poverty and unrequited hard labour.

If two large lizards, " kaka," are met chasing each other to copulate, it is a sign that the bride's sister, or sisters, will commit some faux pas. If a pair of little lizards, "reta kaka," do the same, it foretels intrigue among the bride's female servants.

If birds copulate, it portends that the intended bride is in love, or intriguing with some one else.

A jungul cat, "bow," crossing the road, signifies the bride will be a lazy good-for-nothing person.

In anointing the bride's head with oil, should a drop trickle down her nose, it is a good sign; should it go down her temple or cheek, it shows she will be inconstant.

If a Mindanao thrush, "ooï," Indian magpie, "hoorlee," or oriole, "bocho," perch on a kuhar tree, "doorlee daroo," in front or on either side, it portends the bride and bridegroom and their children will have ulcers. If they perch behind, the Dootám will have them.

If one of these birds are seen flying up and turn back, it threatens the bride's parents refusing to give her.

The voice or cry of the queen of the white ants, "boonoom enga," is a bad sign.*

If a number of "sarooses" or vultures, pass, it is a good sign.

If a magpie, woodpecker, vulture, Mindanao thrush, oriole, crow, or other bird settle on the summit of a large assun tree, "hatna daroo," it foretels riches.

If two dhamna snakes, "jamboo bing," cross, it also foretels wealth.

If the bee in wandering through the woods searching for honey settle upon a man, it foretels wealth, and that he will be very hospitable.

The same, and longevity, if a number of crow pheasants, "sengel topo," cross over.

A troop of hannooman monkeys, "sarra," crossing, promises great herds of cattle.

If any bird sit on a keond tree, "tirril daroo," it denotes the bride will be a vixen.

Meeting women, young or old, carrying water in ghurras, is a good sign.

If the spotted eagle, "doomoor kivid," settle on the right side, it bodes imprisonment to the traveller.

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* This may allude to the low stridulous sound emitted from ant hills, during the sultry hours of noon, which ceases on near approach.

Rites, &c. at Childbirth.

When the pangs of childbirth are coming on, the husband procures some widow as midwife, to whom a fee of eight annas is given. During the wife's illness the husband alone cooks for her, and also for the midwife, who is unclean, as well as the husband; for eight days all the children and servants are excluded from the house, and sent with provisions to live for the time at some relation's; very little children are allowed to remain with the father.

Should the pangs be very violent, and the women's life in danger, divination is had recourse to, to discover the afflicting divinity, to whom a cock, goat, or sheep is sacrificed.

For eight days the husband cooks his own dinner, remaining apart from all friends and relations; during this time these latter prepare Eely, which they brew on the fourth day, so that it may be upon the eighth and place it in the husband's house. On the eighth morning the father shaves the child's head, and gets his own shorne by a taunty, or by his own servants. He then bathes and washes his clothes, and the wife does the same. They then go and partake of the Eely which has been set apart for them, and the relations finish the remainder, taking it away to drink.

The unclean state of the husband and wife still continues till the new moon, or the moon's first quarter, according to the time of the child's birth, and the expiration of the eight days. Finally, there is a grand feast at the house of the husband and wife, and they are held clean from that date.

Naming the Child.

When the child can begin to stand or waddle about, the parents think of naming him. For this purpose they procure a pan of water in which they put four grains of Oorid, then take them out, and rub them in the palms of their hands until they are well softened. The father then cries out a name, saying he will adopt it if the grain of Oorid floats in the water, but not if it sinks. Four names with the four seeds are thus tried, and the name to which the seed floats is assumed and given to the child.

Should all four seeds by any chance sink, the ceremony of naming is abandoned for six months, or a year, when the same operations are resumed.

It is common among the Koles for a friend of the family to wish to stand namesake to the child, but when this occurs, the grain of Oorid is still had recourse to, and if it sink at the godfather's name, he is rejected.

The namesake, or "sakee", binds himself to help the child in sickness, distress, or poverty; by sending goats, fowls, &c. to sacrifice in the former case, or by lending him rice, &c. to be repaid without interest in the latter, and this sponsorship ends in unbroken friendship between the two, throughout after life.

No kind of religion, or rites, or ceremonials are taught the children, but they pick them up as they can, by observing their elders. If a child die unnamed, it is not thought any particular misfortune on that score.*

Funeral Rites.

When a person is dead, the people of the house set up a howling, or "keening," which continues till the news has been given to all the relations, and the pile prepared, which it is in the yard of the house; first thick logs are placed, then smaller transverse faggots, on this a wide plank, along the edges of which sticks are laid; when this is prepared, the corpse is brought out foot foremost, bed and all, with all its ornaments on, male or female, by the women of the village and of the house.

It is then placed, amid crying and howling, on the pile, the head to the northward; rupees, to the amount that can be spared, are put into the mouth, a lota on each side the body, a brass, or "p'hool," kutora on the head, and one at the feet. Another board is then put on, and above it more wood, by the women, who amid redoubled lamentations, set fire to the pile.

When the whole is consumed it is suffered to remain all night, people going to and fro to watch it; next morning water is poured on the ashes through peepul branches, and women pick out all the half-consumed bones, which are dried, then sifted in a sieve, and then put into a ghurra and covered with leaves, after which it is hung up to the eaves at the back of the house. Eely is brewed on this day, and when it rises on the fourth day all assembled to bathe, wash their clothes, and shave, and then anoint themselves with the blood of a pig, after which they feast and drink up the Eely.

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* The youngest born male is heir to the father's property, on the plea of his being less able to help himself on the death of the parents than his elder brethren, who have had their father's assistance in settling themselves in the world, during his lifetime.

That same evening the ceremony is gone through of calling the spirit of the departed. All the company, except four people, the father, mother, and two women, or brother and sister and two women or men, sit outside in the back yard; some boiled rice and a pot of water is then placed within the inner room of the house, and ashes sprinkled from thence to the threshold; the father and mother, or brother and sister, as it may be, then go out, taking two ploughshares in their hands—the other two people are left in the house to watch. Those who have gone out proceed to the spot where the body was burnt, and where (in some parts of the country) a clay horse and rider, and an earthen pot on a tripod, with the mouth closed, are placed; round this spot the two relations walk, beating together the ploughshares, and calling out in a plaintive wild strain,

K'alleeng crankedmia K'alleeng enkakedmia Hoojoorooamén
" We never scolded you never wronged you; Come to us back,

Booqité 'leengposakeamia assooladmia Essoodinmidté ieeng tykena
" We ever loved and cherished you. and have lived long together

madoaré leen tykena na do alum bageea! gama needa ko
" under the same roof. desert it not now' The rainy nights,

Rabang rabang poio dinko dâra nendre do alum honorbȳa
" And the cold blowing days, are coming on: do not wander here.

Atarked jang japarré alum tingoona Hoojoo rooámen
" Do not stand by the burnt ashes; come to us again! You

Hesa soobaré umdo ka tȳ dȳa gama hoojooredo
" cannot find shelter under the peepul, when the rain comes

Rabang hoioré sarjum do Boogité ka domiai
" Down. The saul will not shield you from the cold bitter wind.

Oáté hoojoomèn Umnangenté oa do boogikidallé! alleeng do
" Come to your home! It is swept for you, and clean; and we

Moonooité heating metanna, alleeng dóleeng minna, umnangente mandeeleeng
" are there who loved you ever; and there is rice put for you;

doikia, dahleeng-doikia Hoojoomén oátéhoojoomén Dooïrimén alleeng tar!
'And water: come home, come home, come to us again!

They then return to the house door, and call for a light, and commence searching for traces of the return of him they have been invoking; they look in silence along the ashes for the supposed mark of the footstep of the spirit; they examine the rice to see whether the grains have been disturbed—the water, to detect any drops thrown on the ground; should any of these signs be discovered, it is announced that the spirit is come back to the house, and they sit down apart, shivering with horror, and crying bitterly, in which they are joined by all without, who come and weep long and loudly, and then depart.

The ceremony of going out and calling is persevered in till some signs, or fancied signs of the return of the departed to his home have been discovered.

The relations assemble once more to settle the terms and time of burying the bones. Rice is given to people to fetch a stone, as large as the means of the family admit of, which is to be put over the grave. Into the grave, which is two cubits broad and chest deep, and in the public burial place of the village, rice is put, on this the pot of bones, over this, rice, clothes, money, brass ornaments, and every thing they can afford.

The whole is then covered, and the stone or rock placed over it; on this a goat is sacrificed, and the blood and heaps of salt sprinkled all over the stone, also oil is spread over the gravestones of all the dead relatives who are lying around, to awaken them to receive the new comer.

They also tie a strip of cloth to a branch of the tree above the gravestone, to show all passers by the quality of the cloth which was buried with the bones.

Besides the gravestone, another, a *cenotaph* stone, is buried upright to commemorate the name of the deceased, at the edge of the village, or side of the road, and the departed spirit is supposed to love to come and sit beneath its shade, when going to and from his house.

The Koles suppose the spirit to walk about in the day, and to keep in the house all night, for which purpose they preserve a little space clean for it, on which they place a small mechan, called "Tantara", underneath which, in every Pooja or Purub, a small portion of the sacrifice is placed.

Kole History of the Creation of the World.

Their following idea of the creation of the world, and of castes, &c. was communicated to me by some of the Mankees orally, and copied almost verbatim. In the commencement, Ote' Boram and Sirma Thakoor, alias Sing Bonga, or God, were self-created. Sing Bonga is the sun. After them the moon was self-created.

Ote' Boram and Sirma Thakoor then made the earth; after that they clothed it with grass, trees, rocks, water; they then made cattle, which were first born in "Bogo Bochee;*" after them all wild animals. They then made a little boy and a little girl, at the bottom of an immense ravine, and as they had no houses to live in, the gods told them to inhabit a huge crab's cave (Katkomoá.) They grew adult, and Sing Bonga came to see them every day, and called them his grandchildren; but at length seeing no hopes of any progeny, from their extreme simplicity, he taught them the art of making "Eely," (rice beer) the use of which caused those sensations, which were in due time the means of peopling the world.

After the creation of man, Sing Bonga, or the sun, married Chandoo Omol, or the moon, from whence sprung four sons and numerous daughters. Now the four sons kept with their father, and the daughters lived with their mother, and as the sun rose every day, with his four hot, fiery sons in addition, the whole world began to burn; and all the animals and man perishing with heat, entreated the moon to save them; so the moon resolved within herself to destroy the sun's sons, and went, and accosting the father, said, "Our children do much harm to the world, and will soon destroy your labour. I am determined to eat mine; do you also devour yours." The sun promised he would follow the moon's example; and so when she hid all her daughters, and came and told him she had devoured them, he destroyed and eat all four of his children; after which the moon released her daughters from confinement. This artifice so enraged the sun, that he drew his sword and cut the moon in half, but repenting afterwards of his anger, allowed her to get whole in certain days, though she still remained condemned to be in half at others, and so she remained, and all her daughters with her, which are the stars.

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* I could never learn what place this alludes to.

Now, some time after the first man and woman had lived together and known each other, Sing Bonga came down and asked them what progeny they had; they say unto him, " Grandfather, we have twelve sons and twelve daughters; these twenty-four lifted up their voices and said, " great grandfather, how can we brothers and sisters all live together?—Sing Bonga said, " Go you and make preparations and make a great feast, rice and buffaloe's flesh, and bullock's flesh, goats, sheep, pigs, and fowls of the air, and vegetables;" and they did so; and when the feast was prepared, Sing Bonga said, " Take ye two by two, man and woman, that which shall please you most, and that shall ye have for share, to eat all the days of your life, apart from the rest, so that none shall touch his brother's share."

And so when the feast was prepared, the first pair and the second pair took buffaloe's and bullock's flesh, even as much as they could carry, and these became the Kole (Ho) and Bhoomij (Mootkan) race; then a pair took the rice; and other pairs, male and female, rice and vegetables, and these became Bramins, Rajpoots, Chuttries and other Hindoos; and others took away the goat's flesh and fish, and became other kinds of Hindoos; the Bhooians took the shell fish, lastly, when nothing was left but the pig's flesh, came two pair and took it away, and these are Sontals and Koormees to this day; and when all the feast was cleared away, there remained one pair who had nothing, and to them the Koles gave of their share, and these are Ghassees to this hour.

And so all these went and lived separately, and peopled the world, and multiplied exceedingly, and Sing Bonga taught those who lived in far countries other languages, and he gave people of different trades their implements.

And after this from the Koles, from their senior house, sprung the English, who also eat of bullock's flesh. But they are the senior children, and the Koles the junior!

And after the world was peopled, Sirma Thakoor destroyed it once, with the exception of sixteen people, because people became incestuous, and unmindful of God, or their superiors. (Some say he destroyed it with water, some say with fire.)

Wicked men are born again as dogs, pigs, or lizards. Those who swing at churruck poojas, become, some kites, others flying foxes. Suttees never are born again, but remain burning for ever in their pits, and come out at night, wandering about, still burning (so say the Ghassees.) Good people after death are born again in some better condition in life than formerly. And this order of things will remain for ever and ever. There will be no last day.

When men die, their spirits go to the Sing Bonga, who asks them how they have lived, and judges them. The wicked he whips with thorny bushes, and sometimes buries them in great heaps of human ordure, and after a while sends them back to be born in this world as dogs, cats, bullocks, lizards, &c. The good man he sends back to be born a still greater and better man than he lived before, and all that he had given away in charity, Sing Bonga shows him heaped up in heaven, and restores it to him.

Gods and Spirits.

Besides Oté Boram and Sing Bonga, or Sirma Thakoor, there are Nagé Era or Garra Nagé, Desa Oolee, Marang Bonga—his wife is Pangoora ; these are village gods.

Chanala Desum Bonga, also his wife Pangoora, belonging to married women.

Horaten Ko, or road gods, who come along with a new wife ; also Mahlee Bonga, and Chandoo Omol.

Nagé Era, or Garra Nagé, or Chandore, is worshipped in springs, rivers, or wells ; she is supposed to preside over cutaneous diseases, and deafness ; she is propitiated with eggs and huldee ; if that do not do, with a pig. She has no father or mother, but was self-created. She is invoked to help in catching fish. *Desa Oolee* presides over diseases of the head and stomach ; he is the guardian of the village, and invoked to prevent infectious diseases coming into the country, also to insure rain, good crops, no diseases in the cattle. His wife is *Jaër Booree.* Desa Oolee is worshipped at the Mäg Purub ; they sacrifice goats, buffaloes, fowls. *Jaër Booree* is worshipped at Bah Purub, in March and April, and in Batta Oolee, in Assar. The same things are offered to her, except buffaloes ; and she presides over the same things. Désa Oolee lives in a grove made for him ; Jaër Booree in another. They were from the first, as man and wife, but have no known progeny.

Marang Bonga presides over sickness, and is worshipped according to the extent of the sickness and means of the patient. He lives in a grove (small one) where they erect a post, after sacrificing a buffalo, and sticking its horns on the top.

To *Pangoora* they sacrifice, on account of sickness and fever, fowls, goats, or sheep; she lives under a tree, or two or three trees near an ant hill; no post is erected for her; she is the wife of Marang Bonga.

Chandla Desum Bongo is worshipped for diseases by married people alone, as he comes along with the bride from her village; Pangoora, his wife, is the same.

Horatén Ko are the spirits of the forefathers of a newly-married woman. They are worshipped on the road, and to them are sacrificed fowls, goats, or an old bullock; they are invoked for sickness.

Mahlee Bonga is invoked by cripples or blind people; he lives any where indiscriminately. They offer him pigs and fowls. Chandoo Omol is propitiated by a pig and a black fowl, for sickness: she lives wherever she was first worshipped.

None of these spirits have any reputed figure or description, and consequently are never represented by idols. The Hos frankly confess that as their gods, to their knowledge, have never been seen, they cannot be described; they also know nothing of the origin of them. They have, moreover, no notion of a devil or any evil spirit, their opinion being that he only who created, is able to destroy or torment either here or hereafter

They have but four Purubs in the year, and these are not fixed to any particular date, some villages being two or three months performing their poojas, before or after others. Mâg Purub takes place about February and March, sometimes in January; Bah Purub follows a month after; Batta Oolee is in Assar; and there is also sacrificing and pooja gone through before eating the newly cut crops of the year, called the "Namagom."

These festivals consist in little more than singing, dancing, and immoderate drinking, besides offering up a goat or two, or a few fowls in each village. The people seldom adorn themselves, or make themselves cleaner than at other times, and the villages do not unite in these merry makings, but go through their ceremonies at separate times, and at their own sacred groves.* At Mâg the men and women occasionally put on grotesque finery, and their songs and dances are wild and pretty. The figures and airs are nearly all alike; the women form a circle, are staid and demure, and sing in a low humming strain, while the men and drummers in the centre, in all stages of intoxication, twist themselves into all manner of contortions, and indulge in violent and ludicrous gestures. During one ceremony, at the Mâg Purub, the Koles abandon their usual decent behaviour to women, and both sexes go tramping through and about their villages, chanting the most odiously filthy recitative, in which the youngest who can lisp are allowed to join

But if their public Purubs are few, they make up amply by the number of private sacrifices which they carry on in their own houses. On account of sickness in any member of the family, or among their servants, the most trifling indisposition, as well as the gravest malady, has but this one remedy among them. They never attempt resorting to medicine, and no frequency of deaths, no extent of the ravages of any contagious disease, can shake their faith in the one resource of offering sacrifices to the god who is supposed to be chastising them with the visitation. In endeavouring to dissuade them from this dangerous folly, in which the father of a family, with unshaken bigotry, sees his household swept away into the grave, and the whole of his live stock destroyed in vain efforts to check the ravages of sickness, by sacrificing to the gods, we have as yet signally failed; although they were, by dint of constant entreaty and admonition, induced to come to the Hospital at Chyebassa, and although many cures were performed upon them, it has proved of no eventual benefit; the Koles now never make their appearance to seek for medical aid, and the slight temporary reform that was effected among them, has altogether ceased.

The most gross superstitions still prevail among this people with regard to witchcraft; but the dreadful effects of this belief, to which numbers of unfortunate persons have fallen a sacrifice, have now, through fear of our laws, almost wholly ceased. The Koles believe that by certain prayers and incantations, a person can obtain sufficient power to produce the illness, or cause the death, not only of any obnoxious person, but of whole families, or even villages; and that these evil arts can also extend to the crops, the cattle, and the weather!

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* These sacred groves, or plantations of saul trees, are attached to every village, they call them "Saer".

Should any such misfortunes befall them, it is of course immediately referred to the machinations of some sorcerer, and every means is had recourse to, to discover him This is effected either by certain signs, or by the divination of some augurer, or most frequently (in case of sickness) by the declaration of the patient himself, who declares he has seen the wizard in a dream, standing on him, and sacrificing to the gods, to procure his dissolution. Such is the inflexible integrity of the Koles in speaking truth, that I firmly believe the sick man, in all such cases, does dream of the person he denounces. Being taught from his infancy to attribute every misfortune to preternatural agency, it is not to be wondered at, that when in his turn afflicted, his apprehensions rest upon some one, with regard to whom a previous quarrel, or other cause of ill-will, suggests the fear of retaliation, and these thoughts, long nourished while waking, would naturally embody themselves in sleep in some dreadful dream, which at once substantiates all the suspicions of the sufferer!

Should these proofs however be wanting, the near relations of the patient have recourse, as I said, to a diviner This class of wretches, sources of all evil, are not, happily, so prevalent among the Koles as the Hindoos who reside in the vicinity. To these the poor credulous creatures resort, journeying to great distances, and parting with almost all their possessions to obtain the aid of the sage, who, after collecting such information as he requires, pockets his fee, goes through some absurd ceremonies, and coolly denounces the person he may consider best suited for the distinction, as the originater of all the calamity.

The life of the unfortunate victim so pointed out was, of course formerly, not worth an hour's purchase; he was either slain openly by the party, whose kinsman was dead or dying, murdered in cold blood at night, or in some cases, demanded from his clans people, to undergo the ordeal. The latter have seldom been known to refuse such a requisition. The ordeal, however, was, as it has been in other countries.

merely a means of glossing over the proceedings. The person denounced had either to dip his hand into boiling ghee, or water, or stand upon a red hot Koolharee (shovel) when, if scalded or burnt, he was declared guilty, or he was tied up in a sack and thrown into the water, with the option of floating on the top, if he could.

The particulars of the ceremonies of divination and ordeal I cannot describe, having no longer the means of gaining information from the natives. Hitherto I have been writing from their dictation. The account of the creation, and of their marriages, and other rites, and their mythology, have been translated almost verbatim from their lips. Having now left them and their country, I conclude the theme from memory.

The Hos, although totally distinct from Hindoos yet, being a simple race have suffered that crafty people to lure them in many ways into following their ceremonies, rites, festivals, and prejudices. Those near the boundaries have become as subservient to Brahmins as any Hindoos would be; but on this subject I shall speak hereafter. The "curse of caste" is strongly felt by them, and its follies strangely mixed up with the distinctions of relationship. They divide themselves into clans, called "Keelies," of which there are a great number. Who the founders were, or whence they take their names, I never could ascertain. A man cannot marry into his keely, as it is looked upon as a kind of brotherhood; neither can he eat with one of another keely. They have separated themselves entirely from the race from which they sprung, viz. the Mondas of Eastern Chootia Nagpoor, although Keelies of similar names are found in both. When the separation took place, it is impossible to say, but it has become marked not only in manners, dialect, and dress, but in appearance. The Mondas form part of the good tempered, but ugly figured *Dhangurs* seen in Calcutta The Hos are, on the contrary, eminently handsome, with figures like the Apollo Belvidere. These last shave the hair off the forehead, and wear it tied behind. The Mondas wear their locks dishevelled, or clubbed at the top of the head, transfixed with a long pin or comb, and are at once distinguished.

The Hos are particular in their diet. They eat beef (all but the border and half Hindooised ones), mutton, goat's flesh, fowls, hares, deer, and fish. The poorest classes eat pig, but unlike the *Dhangurs*, Santals, Bhoomijes, and other tribes inhabiting the jungles, they never touch the flesh of bears, monkeys, snakes, and other wild animals. The Hos, with some few exceptions, will drink spirits (of which they are extravagantly fond) from wine glasses used by us ; but they will not drink water contained in any earthen vessel, which may have been touched by other classes. Many of them believe the essence or soul of a man to lie in his shadow, and consequently will relinquish boiling rice or other food, while preparing, if the shade of a different caste person fall upon it.

Their standard dish (as it is both meat and drink to them) is " Eely," or rice beer. It consists of rice and water boiled and mashed together, and then left to ferment for three days, with a piece of " Rannoo" (a bitter root) to aid the process ; of this all classes, ages, and sexes, partake, many of them intemperately. In their hunting parties it often forms their sole sustenance for two or three days. The drink is not badly flavoured, and use would make it, I should think, just as palatable as our common small beer ; it causes moderate inebriation, and all classes appear after their meals slightly " jollified" by it. They seldom drink to a disgusting excess, and quarrels from intoxication are not of common occurrence. The *Soondees,* a spirit manufacturing class of Hindoos, are numerous throughout Singbhoom, and make a strong distillation of the Mowhooa berry, called by the Hos " arkee ;" of this the latter, left to themselves, do not much partake, preferring their own beer.

As yet, commerce has been scarcely at all introduced into the Kolehan ; the people, among whom poverty is unknown, remain contented with the spoils of the chase, and the limited produce of their fields, which are only cultivated in sufficiency to meet present want. They are bad husbandmen, and no agricultural works on a large scale, such as tanks and bunds to meet the exigencies of a dry season, are met with in the country. The " levelling system" obtains so much among them, that there is no farmer or landholder in the country with capital sufficient to go through with such a work. The former lords of the soil, the " Surawuks" (Hindoos), excavated many fine tanks, the traces of which still remain ; they have all however been destroyed by the Hos, who let out the water for the sake of sowing the rich mud at the bottom , or have allowed them, through superstitious motives, to fill up from neglect. Being an undulating country, their rice cultivation is restricted to nullahs and water-courses, over which they form fields, by choking up the stream with soil brought from the "Tarn," or upland, a process of infinite toil. An inferior kind of rice, "Gora dhan," is sown in the uplands, and the jungle tribes cultivate the hills up to their summits with cotton, moong, oorid, chunna, til. surgoojia, tobacco, &c.; such common esculents as the jingee, khukra, cucumber, pumpkin, maize, and baugun, are grown in their villages; also vast quantities of the castor oil tree, of the kut'hul, or 'jack', and mangoe trees, which the Surawuks planted in numbers, but few now remain. The Hos prize much more the tamarind, which is met with in every village, and grows in great luxuriance.

Vast quantities of the Tusser worm are reared in the "Assun" jungles throughout the country, the proprietors of which preserve them with great jealousy and care. The cocoons are sold to bead merchants, who come annually to barter them in return for necklaces. The silk is manufactured at Seraykela, Bankoorah, and Medneepoor, that from the former being most prized. In tending the young worms, much the same ceremonies are gone through as by the people in the Sunderbunds; fasting, continence, and cleanliness, being considered indispensable. The Hos travel all the way to Poory for the sake of purchasing salt; they are allowed to bring it laden on bullocks through Kewnjur, by paying toll; but in passing through Baumenghattee, a nearer and better road, salt on bullocks is seized and confiscated by the Mohenbunj Raja. Bangy loads are however suffered to pass on payment of some *douceur*. There is no Government gola nearer than Medneepoor or Bankoorah.

Vast numbers of cattle are bred in the country; the Hos do not tend them themselves, but deliver them over to Gwallas, with whom they keep little account, until the cattle are required as payment on marriage occasions. The latter accordingly make a good thing of their charge, selling the milk and ghee, and often the cattle themselves. Great quantities of the latter, and also of buffaloes, are sold to Tamarias for the most trifling prices, besides numbers stolen or swindled away by their customers, who are notorious cheats and robbers. In former times, when the Hos used to make "Raids" over the borders, and harry the cattle of their neighbours, these little filchings were not so much minded, but now that their excursions have been put a stop to, the owners get more careful, and keep a better look out on the Gwallas. The sheep also, which are numerous in some parts, have been pronounced by judges to be equal to the Patna mutton for the table; but these and goats, as well as poultry, the Hos part with with difficulty, as they require them for their sacrifices, &c. A peculiarity in the country, is the immense flocks of pigeons, which breed in every village, and afford the poorest a delicacy at all seasons. With money the Hos are getting pretty well acquainted, but still hold copper coin in great disdain, seldom taking the trouble to count a large quantity, but reckoning it by handfuls, to the unfeigned astonishment of our Hindoo servants, who would squabble for the tenth part of a cowree.

In summing up this account of the Hos race by a description of their general character, their virtues and vices, I may perhaps fall into the error of a little partiality in their favour; three years constant intercourse with them, in which their love of truth, their honesty, their obliging willingness, and their happy ingenuous disposition, formed so striking a contrast to the mass of the people in Hindustan, may perhaps have induced me to pass lightly over faults to which they are but too liable; but this error (a pleasing one) is I imagine shared with me, by all the European residents who were at Chyebassa. Whether the duplicity and bad propensities of Hindoos in general, be owing to their intercourse with us, or whether it be inherent among them, is a point at present mooted, and not be decided by myself. But among this simple race, the reputed evils of civilization have not yet commenced to be felt; and fervently is it to be trusted, though, alas, the hope may be Utopian, that the introduction of our Courts of Justice, in checking the lawless tendency of the Koles, may not destroy those virtues which are inherent to a primitive state of society. The unhappy feuds which, handed down through generations, formerly existed among them, were owing rather to mistaken notions of honour, than to more malignant feelings; and the best proof of this, is the ease with which through a little timely advice, quarrels *a l'outrance* of the oldest standing have been made up, and whole clans readily reconciled to each other. After the first rough settlements of this country had been made, this became the especial care of that truly wise and benevolent man, Major Wilkinson, the late Political Agent of the South-West Frontier,* and fortunate was it, that his excellent arrangements were so well seconded by the inherent good feelings of the people, for whose welfare they were directed. The depredations committed by the Hos formerly on their neighbours, for the sake of driving off their cattle, were chiefly, if not entirely, at the instigation of the Hindoo Zemindars around, who employed them to wreak their own malice on their neighbours, and indeed the Hos served them, in a manner, as mercenary hordes. Their forays were never marked by cruelty or unnecessary violence, nor except when they were openly resisted, was ever life taken. A fearful number of people (among themselves) have fallen sacrifices to the horrid superstitions respecting witchcraft; but such crimes, common to the barbarous ages of all nations, and but too prevalent formerly in our own, must be, by the impartial observer, attributed more to the depravity of the judgment than the heart. The superstition still continues, but the horrors resulting from it have almost entirely ceased. But cold blooded murder for the sake of gain, robbery, even pilfering, lying, deceit, dishonesty, even of the most venial kind, are almost unknown, and looked upon with disgust. The truth and integrity of a Kole are well known, and the fidelity of their wives, and modesty of the females in general proverbial.

They are on the whole a light-hearted and good-natured race, irascible, though quickly appeased. But so strong is their sense of injury, that a harsh word suddenly spoken, will produce the most serious results; for this reason they seldom quarrel, and terms (epithets) of abuse are unknown in the language: among females the mere hearing of a few words of reproach will induce them to commit suicide, and this crime among both sexes is so frightfully prevalent, as to afford no parallel in any known country. The mere bantering a lad on his predilection for any girl, has led to self-destruction; jokes of an injurious nature they do not understand, and indeed seldom or ever indulge in them, although in the most harmless way. Beggars are scarcely known in the country, but the Hos are charitable to those deserving aid, and hospitable to strangers to the same degree as Arabs of the desert, for it is thought a sign of enmity to stop even at the door-way without a 'stirrup cup' of Eely. Among their chief faults may be reckoned indolence, and dirt. The poorer people are often very filthy, and unless in the warm season, seldom touch water. The lowest classes will not object to devouring bullocks that have died, from disease, out in the fields, even though far advanced in decomposition, and will devour stale eggs, half-putrid fish, &c. &c. But these filthy customs are confined to the very lowest and poorest of the people.

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* Now Resident at the Court of the Raja of Nagpore (Berar.)

Memoir of Sylhet, Kachar, and the adjacent Districts. By Captain Fisher, *formerly Superintendent of Kachar and Jynta.*

The provinces of Bengal east of the Brahmaputra, though among the earliest acquisitions of the British in India, attracted but little attention for a long time, in consequence of their general tranquillity and secluded position. The vast mountain regions by which they were encompassed on their external frontiers, seemed to secure them against the chance of serious foreign invasion, while the incursions of the wild hill tribes had but slight effects on their internal condition, and were easily curbed by a few local troops retained chiefly for that purpose. If Sylhet excited but little interest, still less was naturally thought of the petty independent states connected with it; and it was only after the Burmans had conquered Assam and Manipur, that a wish seems to have arisen for a more accurate knowledge of their condition; though this was still greatly restrained by fear of giving umbrage to their chiefs The events arising out of the Burmese war have materially altered the relations of all these countries, on which, however, it is not my purpose here to enlarge, but simply to bring to notice such facts respecting their geography, internal condition, resources, and traditional history, as in the course of a long residence, and the prosecution of various inquiries, I have been able to collect; restricting myself however to the correction of current errors, and the notice of such particulars as have not hitherto obtained general publicity.

Geography.—The survey of Sylhet, though unfinished, has yet been prosecuted far enough to shew, that the area of the district is more considerable than had been supposed. As the external boundaries towards the Tippera hills, Kachar, and the Kasia mountains have been traced, and the outline is only incomplete on the western side, on which it is not likely any material difference from the old delineation would be discovered, it is likely that the contents (4500 square miles,) now assigned for it, is pretty near the truth. The quarter in which the most considerable error has been found in the old map is the southern, which Rennell does not seem to have visited; and here many of his positions have been found from ten to forty miles too much to the north. The topography too of this part has been amended, the chains of hills, or rather ridges, having been ascertained to consist of several parallel ranges, separated by wide and fertile vallies, and ranging north and south, instead of east and west, as before supposed Some of these ridges also are found to be partly in Sylhet, and partly in Tippera, and in two or three instances they penetrate deeply into the former district.

On the side of Kachar, the boundary of Sylhet has been traced southward to Chatrchura, a conical peak on the Banka range of hills, the country about which is frequented by the Pytu Kukis, a wild wandering tribe, who migrate from this their north-west limit, eastward to Tunghum, and southward to an unknown extent, their cognate tribes being found in the neighbourhood of Chittagong

In Lower Kachar a complete survey of the cultivated tracts has been effected, the principal rivers traced, and in particular the course of the Delaseri from the southward, followed through a part which heretofore presented only a blank in the map. This tracing, was, however, executed by one of my native surveyors, after circumstances had put it out of my power to conduct it myself.

Captain Pemberton's surveys in Manipur fix the eastern boundary of Kachar, but points of junction between our surveys occur at Aquee, in the Naga Hills, and on the Bohman range.

In Upper Kachar a line has been traced along the Jatingah river to its source, and thence to a point on the Di-yung, at which it becomes navigable for small boats, beyond which I had no opportunity of proceeding northward, but the remainder of the route into Assam was explored by Captain Jenkins, whose valuable Report illustrates the whole of this country. The survey, however, in this quarter was carried far enough to fix the courses of the great streams and ridges, and to establish a relation with the route pursued by Captain Pemberton from Manipur into Assam, the great ridge crossed by him being in this survey traced westward to its termination in a number of ramifications on the Modura river. The fact of most interest ascertained by this part of the survey, is the facility with which a road could be formed from the navigable limit of the Jotingah to that of the Di-yung, by which the intercourse with Upper Assam would be greatly extended, and its communication with Calcutta shortened. So gentle is the ascent, and so few are the obstacles, that there seems no reason to doubt, a road for carts might be made with very little trouble.

Returning westward, the survey fixes the boundaries of Jynta, and much of the mountain tract immediately north of Sylhet and Pondua, including the country between Chirra Ponji and Nunklao. It then traces the outline of Sylhet at the foot of the Kasia Hills, and is prolonged to Sowara, on the banks of the Brahmaputra, from which it follows the old channel of this river to Naraingunj and Dacca. The object of this last portion of the work was to connect the survey and a series of astronomical observations made for longitude at the town of Sylhet, with a position which had been well fixed by Mr. Walter Ewer of the Civil Service, and to which the Assam Survey had also been referred. For many of these observations, which were made on the transit of the moon and stars, I was so fortunate as to obtain corresponding passages at Greenwich. Dacca was included also as a well fixed point, but chiefly because the water communication between it and Sylhet, was found to be very erroneously delineated in the old maps, in consequence apparently of changes in the course of the rivers below Azmerigunj. Correct outlines were made of these, though they do not appear in the new printed map, for which it is to be supposed they were too late.

The minute operations carried on in the prosecution of the Revenue Survey have afforded an opportunity for acquiring a more intimate knowledge of the topography, resources, and husbandry of the interior, and these complete the list of the several inquiries pursued.

Aspect and Geology.—The physical aspect of this vast tract, presents great variety, and cannot of course be described under one term.

Even in the plains there is less of uniformity than would be supposed on a casual inspection, and the experienced agriculturist well knows that the lands in the eastern part of Sylhet, and in Lower Kachar, are far more valuable than those to the westward, even up to the banks of the Megna. This is explained by the greater elevation of those parts, and by the number of hill streams passing through them, the banks of which are always higher than the adjacent country. The vegetation, as well as the husbandry of these tracts, is greatly influenced by this particular, of which I shall take more notice hereafter.

The hill regions may be conveniently separated into two divisions, distinguished by great difference of elevation, the point of separation being fixed on the Soormah at Luckipur in Lower Kachar, to the south-west of which, whatever elevations present themselves, are under two thousand feet, while those in the north-west still maintain a much greater altitude, and even tower occasionally above six thousand feet. But the division is more appropriate on account of a decisive difference in structure, the northern mountains forming clearly one system, while those of the south belong to another, having reference to high ground in the central parts of Tippera, the existence of which cannot be doubted, though it has never been unequivocally proved. In support of this opinion, I must first point out that the numerous streams flowing from the southward into the Soorma and Kusiara rivers, and of which the very existence was scarcely known before this Survey was made, are many of them of a force and volume indicating a long course, and shewing them to be the drains of high land, from which alone they would draw the water which they discharge, for the Delaseri, the Sungai, the Munu, the Khwa-hi, and the Cognati streams appear to furnish during the rains on an average a discharge of about 25,000 cubic feet per second; a quantity quite inconsistent with any supposition, but that of long courses and elevated origins, as none of these rivers are more than fifty yards in width.

If a reference be now made to some of the older maps on which the other rivers of Tippera are traced, it will be found that the Gumti, which emerges at Commilla, has an east and west course, and that the Chingri and Kurumphuli, which debouche at Chittagong, run nearly southward, while the Kola-dyng, as delineated on more recent maps, has a south-west course, and the river of the Kungfui Nagas falling into the Manipur river, flows to the south-east. I may add, that the Tipai river which falls into the Barȧk near Soor, has like the Sonai and Delaseri a northern course. Thus these considerable streams radiate from land in the unexplored regions of Tippera, somewhere between the 23rd and 24th parallels of north latitude, and 91° and 94° of E. longitude, which is unfortunately still a blank in our maps.

I have enlarged on this subject, because I conceive it is one which when attentively considered, will be found of great interest, involving the condition of a tract of country, our ignorance of which, in some conjunctures we might have occasion to deplore.

Both the hills and vallies of Tippera are thickly wooded, and the latter often contain extensive grass jungles, the resort of wild elephants. The most eastern portion of the northern range of mountains is occupied by Upper Kachar, a wild and thickly wooded tract, the mountains of which sometimes attain an elevation of five thousand feet, but offer considerable diversity in that respect, as they here break into branches of the great ridge running between Manipur and Assam. The river Kupili, flowing into the Brahmaputra, marks the limit of this tract, and the termination of that vast system of hills which stretches westward from the unexplored country to the north-east of Manipur.

The Kasia mountains rise immediately from the valley of the Kupili, and range westward to Laour, near which they are bounded by the Patli river, the hills west of that belonging to the Garrows, and being distinguished by an aspect and structure of their own.

Much has been written on the Kasia mountains during the last ten years that they have been visited by Europeans, but I am not aware that any attempt has been made to account for their peculiarities, nor would I now undertake the task, but that I fear it will be left undone by those who could perform it so much better. The physical aspect of these hills excites the strong attention of the observer, as being so greatly at variance with that of the whole country in their neighbourhood. The barrenness of the table land, more especially in its southern portion, where not only does nature yield but little, but where art is found unable to assist her, is perhaps unprecedented in such a climate. This sterility will, I think, be found to be closely connected with the character of the rocks, and the disturbance of the strata, but more especially with the latter, for where these are horizontal, there is an absence of vegetation, and wherever the strata are inclined to the horizon, symptoms of fertility begin to shew themselves.

The absence of any well marked appearance of the unstratified rocks is remarkable in the Kasia hills, for I am aware only of one instance in which they are said to shew serpentine; having, it is said, been seen near Nungklao, a locality which however I had no opportunity of examining. It is true, granite is found, but except at the Okillon hill, always in boulders on the surface, nor has it ever been seen in peaks or amorphous masses, to the protrusion of which, the dip of the secondary strata is usually referred. Except in the single instance of the limestone which occurs near Musmai, I think it may be said that there is no appearance of a disturbance in the sandstone bed by which the country between that place and the Bogapani is filled, and of which the thickness is unknown; now this part (and others similar to it) is remarkably sterile; but wherever the level of the strata has been disturbed, whether by internal igneous action, or by any force of a more limited range, a disintegration of the rocks, and consequent accumulation of soil at the foot of the slope formed, has taken place, and vegetation to a greater or less extent ensued. Thus the slopes formed at the outcrop of the sandstone with the limestone near Musmai are all well covered with wood, which disappears as the slope subsides into the ordinary level of the table land. And in general throughout the ascent from the plains to Chirra, after the limits of the lower bed of limestone have been passed, it may be observed that vegetation is dense only on the slopes, and that wherever ledges or steps occur, they are comparatively barren.

The total rise between the foot of the mountains and Chirra, seems to be about one in ten feet, but subject to great irregularity, while between Chirra and the south bank of the Bogapani, it amounts only to one in forty, with comparatively little variation.

All the vallies on this side terminate in precipitous heads, exhibiting the horizontal position of the sandstone.

To the northward of the Bogapani, the aspect of the country changes, and though the altitude is greater, the vegetation is also more considerable, and continually increases until between Myrung and Nungklao it becomes abundant, though it does not yet exhibit that excess which prevails further to the north and west. A feature will be here found to force itself on the attention, to which unquestionably the increase of vegetation in this part is to be traced; I allude to the numerous and large granite boulders which are scattered in such abundance over the country as to be occasionally mistaken for the crust or surface. The granite has however never, as I before observed, been seen in any form but that of boulders, nor is there any well established instance of these having been seen otherwise than on, or partially imbedded in the surface. I should remark, that the mass of granite, well known as the Okillon, near Nungun and west of the Nungklao road, may be considered of a dubious form, for though the dimensions are enormous, the shape of the exposed part is that of a boulder. The disintegration of these boulders has of course largely contributed to the formation of soil, especially when favoured by the configuration of the ground, but wherever the boulders are missing, and the strata preserve their horizontal position, vegetation remains likewise deficient.

As I am more anxious to record facts than to broach theories, I will not indulge in speculations on the variation of the structure of these hills from those around them, but content myself with observing, that there is nothing in what I have pointed out at all inconsistent with the more recent opinions as to the order, classification, and superposition of the different rocks; for though none of the unstratified rocks have been seen in the positions which they might be expected to occupy in the centre of the mountains, there is still no reason why they may not occupy a place under the sandstone, and have thus effected its up-lifting without themselves protruding to the surface. Further inquiries may throw light upon this subject, which is worthy of very great attention, for if there be sufficient ground for the opinion here thrown out, the geology of this country will furnish a strong proof of the igneous origin of the unstratified rocks, and their more recent appearance above the surface.

I have already remarked, that a bed of limestone extends along the foot of the hills near Pundua, having its out-crop about five hundred feet above the plains, where it abuts on the sandstone. The direction of this bed is nearly east and west, and though frequently broken through by rivers, it is continued westward (declining however in elevation as it proceeds) to Bunsikura, where it is found in contact with the plain, from which in other parts it is always separated by clay and sand hills of alluvial formation. The coal found at Laour rests on this limestone, which abounds in fossil shells, among which the principal are Terebratula and Producta. The cavern of Booban is situated in this limestone, but no measures have been employed to ascertain if it contains any fossil remains.

The few facts which I am able to add on the geology of the whole country under review, may not improperly find their place here, as they can be of value only when taken collectively to illustrate the general formation.

In Upper Kachar the dense woods have materially impeded observation, and I can only say, that the table land is there absent, as well as the granite boulders, and that the formation is of primary sandstone, upon which an alluvial formation is posited. No fossil remains have been procured from this quarter.

The Tippera hills, in the more elevated parts of which we have any knowledge, exhibit primary sandstones underlying an alluvial formation, in which fossil remains are found in sufficient quantity, but no great variety. Those within my own observation have been Madrepires and fossil wood. The alluvial formation over the eastern part of Sylhet and Lower Kachar is of the same nature with that of Tippera, being similar in structure and material. The common feature is a kind of breccia, which is found in masses varying from a mere pebble to enormous blocks of many thousand tons weight, and these are imbedded in the clay or sand hills near the surface (never stratified), often in connexion with a thin stratum of a substance exhibiting a highly metallic appearance, and which seems to be oxide of iron. It is impossible to examine these black blocks, which on fracture display numerous concavities, without entertaining the suspicion of their volcanic origin; but any doubts on this head must cease on looking at the masses of lava by which they are often accompanied, for that the shapeless lumps to which I allude have been in a state of fusion, admits of no question, being proved by their vitrious lustre, close and brittle texture, and by the presence of blisters formed by the air during the process of cooling. I abstain from noticing the localities of the coal beds, salt wells, and Petroleum spring, as they have been heretofore described.

It must be acknowledged that our geological knowledge of this quarter is still lamentably defective, and that the materials for drawing a section of the rocks in their exact order from Thibet, across Assam, Sylhet, and Tippera, are still to be collected.

The points of interest remaining for examination within this division are:—

1st. The course of the Kupeli river from its source to its confluence with the Di-yung, in the valley between Upper Kachar and Jynte. It is likely to pass through a country the geology of which must deserve attention, as the structure of the opposite sides of the valley must be essentially different, the one upholding a table land, the other running up into peaks and ridges, while the possibility that the river may offer a navigable communication with some point easy of access from the side of Sylhet, is an additional reason for examining it.

2nd. The course of the Patli river near Laour. This river divides the Kasia hills from the Garrows, and its valley must exhibit similar diversity in the structure of its opposite sides with that of the Kupeli.

3rd. I have already pointed out the interest that attaches to the country in the middle parts of Tippera, and I may here add, that the geology of this quarter must be valuable, as it is likely to be connected with the system of mountains which separates Arracan from Pegu, and to contain the extinct craters from which the volcanic remains above noticed have issued.

To conclude this account of the very diversified aspect of the country, the vast semi-basin enclosed on the northern, eastern, and much of the southern side by the mountains above described, may be conveniently divided into two tracts, distinguished from each other by difference of level, and by dissimilarity of vegetable and agricultural produce, as well as by their capacity for commodious habitations and occupations. A line drawn SE. from Chattak passing west of Tajpur, through Nubigunj, and thence under the hills southward to Turruf, will serve very nearly to separate these tracts.

That to the westward, extending nearly to the Brahmaputra, is in most parts always marshy, and the whole is subject to periodical inundations of long duration, being in general under water from April to the middle of November. The towns and villages, which in some parts, more especially to the southward, are numerous, are built on mounds raised with earth dug during the dry season; the houses are in clusters, huts for men, temples, mosques, and sheds for cattle, being huddled together in a manner that gives to them the appearance rather of the temporary abode of fugitives, than the settled residence of a people. This tract is called Bhatta, apparently from its lowness, and seems to have been conquered by the Mussulmans before the rest of Sylhet.

The eastern division is on a higher level, and rises gradually towards the mountains on either side; notwithstanding this, the marshes which occasionally occur, might lead to a different belief; but these are very limited in extent, and occupy distinct hollows, and the fact of general rise is proved by the course of the rivers, which without it could never exhibit those strong currents for which they are remarkable.

The irregularities of the surface are referable to three distinct causes:

1st. Several ranges of the alluvial formation crossing it run up into ridges, from one to three hundred feet in height.

2nd. The vallies formed by these ranges rise from the centre towards either side, where the land being above the level of ordinary inundations, is peculiarly adapted for agricultural purposes, and is called Do-fusilya, or that of two harvests.

3d. The banks of the Surma and all the hill streams are occupied by land cultivable for two yearly crops, which however here owes its origin to a different cause, having been thrown up by the rivers in working their channels through the plain.

I have here much satisfaction in bringing to notice one of those rare instances in which the interests of a portion, however small, of the Indian community have been manifestly benefited by the adoption of conclusions emanating solely from European foresight and observation. A causeway constructed by the Mogul Government along the left bank of the Surma, and intended to restrain its inundations, was kept up at a considerable expence by the British Government, until the mischievous consequences which have followed the maintenance of similar erections on the Po and Adige, in Italy, having been brought to notice, it was, about twenty years ago, abandoned, and the river allowed to take its natural course. Contrary to the expectations of many, no harm followed; the river occasionally rose for a short time above its banks, but the inundation ran off rapidly, and it seldom happened that any injury was done. It was soon, however, observed, that wherever the river overflowed its banks, a sediment was left, which both raised and improved the land, and in consequence people far from dreading the inundation, soon learnt to turn it to account; and having banked such lands as were fit for the purpose, led the river to them by narrow canals, which they closed after the flow of water was deemed sufficient, and re-opened when the river had fallen sufficiently to allow it to run off. This practice is now quite common, and by it much marshy land has been reclaimed. The low lands in the Eastern parts of the country may all in time be filled up by the sediment left by the inundations of the rivers, but these are in reality so rare, and of such short duration, that more will be effected by art than nature in this way. It must be remembered, that the ordinary inundation which fills the marshes does not proceed from the rivers but is furnished by the rains, and yields no sediment, this distinction is, of course, not to be overlooked in the execution of the operation above described.

Husbandry.—The agricultural processes in the Bhatta are very simple, and may be briefly dismissed. As soon as the inundation begins to subside, or in the beginning of November, such lands as are sufficiently high for the purpose, are ploughed and sown for rice and millet, the crop being cut in April. Gardens and orchards are unknown, and the cultivation derives the smallest possible aid from the labour which in other parts is so productive. There are neither sugarcane patches, plantations of pán, vine, chillies, nor vegetables,—a little sursoo, and hemp, with some gourds and cucumbers about the huts, appear occasionally, but in limited quantity. The marshes are however filled with cattle, from which profits are derived sufficient to make the occupation of these desolate tracts desirable. Ghee and cheese are made from the milk of buffaloes and cows, and the upper lands are furnished with young bullocks for the plough in numbers, being driven to bazars and fairs in the spring of the year, before the return of the inundation in May and June, after which months they are confined to their sheds, and supported on green fodder brought in boats from the jhils. The people here are extensively concerned in the transport of grain, being the carriers between the high lands eastward and the country to the south-west. The husbandry of the eastern quarter is of a far more elaborate description, though it has not yet exhausted the resources of art on the one hand, nor those of nature on the other. A fertile soil, renewed continually by accumulations from the hills, copious supplies of rain, with immunity from excessive inundation, are among the advantages enjoyed by this favoured tract. The character too of the scenery here becomes peculiar, and is sufficiently marked to call for its separation from that of India generally. Vast sheets of cultivation, extending for miles along the banks of the Surma and other streams, intersected by splendid groves of trees and bamboos, forming shelter for extensive villages, and occasionally by low ranges of wooded hills, and backed always by mountains either near or distant, form an endless succession of gratifying scenes, on which the eye rests with pleasure, and which, whether beheld by the agricultural economist estimating the resources of the land, by the philanthrophist rejoicing in the welfare of his fellow men, or by the lover of the picturesque, must always excite the most pleasurable emotions. But I must not wander from the simple account which I proposed to furnish in this paper.

The ploughing season here begins in the middle of January, when the lower descriptions of land destined for the Aumun crop are first broken up; the higher soon follow, though it is usual to reserve such, on account of the hardness of the soil, until the first showers which fall in February. Before the end of March all the lands are sown, and in July or August the first crop is reaped from the higher lands alone, which are again ploughed and sown for an autumnal crop in November and December. It will readily be understood, that the aumun lands are subject to inundation, though not commonly to the extent which would endanger the crop, and I must here more particularly explain their position, which may else seem not very reconcilable with parts of the foregoing description. I have said that the western division is subject to excessive inundation,—may be marked by a line running southward from the neighbourhood of Chattak; and this is true generally, though a few considerable gulfs cut into the eastern quarter, running up for some miles, more especially between the courses of the great rivers, and form petty jhils of great depth, which are unculturable. The aumun lands are situated on the sides of these and similar jhils, but their cultivation is very different from that of the Bhatta country, the crop in them remaining on the ground throughout the rainy season, and being in consequence very abundant and rich, while that of the Bhatta, grown only in the winter, is both scanty and of inferior quality. These jhils branching from the Bhatta, I should observe, obstruct the cross communications in the higher country, and render it impassable for travellers from about April or May, until the middle or end of November, but do not affect the cultivation materially.

The ordinary products are dhân, dhal, and kulaie, of all which there are many varieties: the grain is usually divided into two classes, called from the situation in which it has been grown Sayl, and Aumun; among these the subdivisions seem to be infinite, and I should add, that they are not mere fanciful distinctions, but made with reference to well marked peculiarities, either of quality or fruition. Thus among the Sayl, which grows on the high lands, there are grains which come to maturity in the short space of six weeks, while there are others, as the Burwa, which can be raised on the Aumun lands in the winter. It may not readily attract attention, but the careful inquirer will, I think, find it no small advantage, that there are so many grains whose times of coming to perfection are unequal, as they afford, under proper management, a sure resource against the loss of crops of more ample, but more slow growth. All the Sayl grains are raised on seedling land and transplanted, and this practice extends, under favourable circumstances, to the Aumun, the increased productiveness consequent, being well known. As a point of some interest in Indian husbandry, and on which doubts have been entertained, I may state from personal knowledge, that manures are frequently and extensively used. My occupation, as a Revenue Surveyor, gave me frequent opportunities of making this observation in the most unexceptionable manner, and that the practice is not readily avowed, I attribute to the fear on the part of the cultivator that any practice which attracts the notice of a European functionary, will be made the ground for increased assessment.

Irrigation is never found necessary except for the winter crops, but if wheat was cultivated, which experiment has shewn to be perfectly feasible in the cold season, water could be had in abundance for the purpose, and in the same way, barley, oats, and potatoes, have all been raised by me in Kachar on terms which prove their culture would be highly profitable.

In attempting to estimate the profits of agriculture, and the condition of the people employed in it, I should premise, that the minute subdivision of the proprietory right to land which obtains in Sylhet, has been accompanied by those consequences which have been observed in other countries similarly circumstanced, and that while the industry exhibited in the cultivation of the petty taluks by their proprietors is very admirable, the want of capital, by which their capabilities might be increased, is but too apparent. I am not however sure, that the physical comfort of the people is as yet diminished by this circumstance, for it is certain that the means of subsistence are in abundance, and I have no hesitation in saying, that I have no where seen a population among whom the ordinary wants of nature were so easily and cheaply supplied. But though there is an efficient and permanent demand for produce, the want of capital, or rather its excessive dissemination, effectually prevents the adoption of means by which the cultivator might derive from his land those profits, which it is calculated to yield. I must here meet an old and often urged objection, that it is the Government exactions which check improvement, by observing, that this is one of the lowest taxed districts in India, the average rate of assessment being somewhere about four annas per head, or one rupee one anna on the adult males alone, while the wages of labour are from two and a half to three rupees a month. A rate therefore which exacts on an average the value of ten days labour from each man in the year, cannot be considered excessive, at least when compared with the average for all India, which is above seven times higher. It is therefore to the dissemination of capital that the absence of improvement is entirely attributable, and the state of the land tenures therefore in this district is well worth the attention of the Indian financier, shewing as it does the condition to which, under the existing laws of inheritance, every province in India is tending.

No cultivator, whether proprietor or ryot, ever follows agriculture here as a speculation, or ventures to till a larger quantity of land than can be conveniently managed by himself and the members of his family, and if he raises grain sufficient for his annual expenditure, and a surplus equal to the payment of the Government revenue, his operations are considered successful. He employs the spare time, of which he has abundance, in other pursuits which do not require a capital, or only a very small one in money. Thus the more considerable proprietors after letting the portion of their taluks which they do not find it convenient to cultivate themselves, often engage in the conduct of adventurers to the woods for timber, bamboos, grass, &c., or they clear land on the hills for cotton, build boats, and convey grain to the markets in the south, &c.; while the Ryots act as boatmen, coolies, and the like, in all which employments little or no cash outlay is required; but they subsist on grain raised in their own fields, while their wives and children maintain themselves by making cloths, &c., for home consumption, or sale, carrying the produce of their gardens and orchards to market, and tending cattle.

There is nothing very remarkable in all this perhaps, except that it exhibits a society among which the first steps in economical improvement have hardly been taken, the advantages of the division of labour not having yet been appreciated, or rather the introduction of that principle having been prevented, by the want of accumulated capital, to meet the expense and delay that must precede the more ample returns which it ensures. I will not enter into any estimate of the expenses attending the cultivation of land, and its return, as a farming speculation, although I have by me details on the point; but conclude this subject with observing, that at the existing rates of rent and labour agriculture would return the former (independent of any improvements he might effect) about thirty per cent., on his capital. The common opinion, confirmed by the current price of estates, is, that money invested in land yields the proprietor from 12 to 15 per cent.

Hill Agriculture.—Among the hill tribes, cultivation is very imperfectly practised, and many therefore depend wholly on their intercourse with the plains; nor can it be said that any of them are at all times wholly secured from want by their own resources. The nature of the country in the south part of the Kasia mountains precludes agriculture, but in the central and northern parts rice is raised in considerable quantity, particularly in the little glens, and on the sides of the vallies, irrigation being practised, and the water brought to the field through narrow canals, and conveyed over hollows, or up heights, for short distances by hollow trunks of trees or bamboos, experience having taught the cultivator that water can be made to rise in tubes to the level of its source. The labouring season is in the spring, and the crop is cut in August and September.

In the wooded parts of the mountains, by whomsoever occupied, whether Kacharies, Nagas, or Kukies, the cultivation is of a mixed description, consisting of cotton, rice, and sundry vetches, grown indiscriminately together in one large clearing. The ground for the crop is first prepared by the dao (or bill), the jungle when dried is burnt, and the ashes worked into the soil, which is then broken up by the hoe, and the seed planted or sown in March or April for a crop in September. The hills on the Sylhet and Tippera frontier are cultivated in a similar manner by the natives of the plains, who form themselves into associations periodically for the purpose of a trip into the hills, on a joint account, to cultivate cotton and cut wood and bamboos. The cotton thus obtained is not exported, indeed the quantity raised is barely sufficient for local consumption. It is short in the staple, but the cloths made from it being found to combine warmth with lightness, are in great esteem among the people.

I proceed briefly to notice whatever appears peculiar among plants, vegetables, and fruits.

Indigo is not cultivated in Sylhet, but though one or two trials have been unsuccessful, I think (with men of some experience) that with greater attention it would succeed. The climate cannot, as it has been supposed, be wholly unfavourable, seeing that the plant grows wild on the hills, and that a very excellent dye is obtained from it by the simple processes there in use. The certainty of having rain for the spring sowings, and the possibility of choosing the ground above the chance of inundation, are among the advantages which I anticipate for the cultivation of indigo in these tracts.

Poppy, sugarcane, safflower, sursoo, and other plants yielding oil, flax and hemp, call for no particular notice, they are all cultivated with success in Kachar, Jynta, and (except the poppy) in the Eastern division of Sylhet.

Oranges, together with the arica and pān vines, for which this country is famous, are all the produce of the lower parts of the Kasia hills, growing only on the limestone strata. Arica of an inferior quality is indeed found all over Sylhet, but deteriorates in quality to the eastward, until in Kachar it wholly disappears. Among other fruits, the plaintain is peculiarly fine, but the mangoe is inferior, and is not found to improve to the eastward; the lemon is found wild in the Kasia hills, and the apricot and lichi in those of Kachar; and in general the vegetation exhibits so much variety, and there are so many new plants offering themselves, as we advance eastward, that this, with the similarity of climate to that of the southern parts of China, led to the inquiries originally commenced by the late Mr. Scott for the tea plant, which if it has not yet been discovered in a wild state so far to the westward, would probably succeed on some of the soils in the alluvial formations of Kachar or Tippera. Several cognate plants have been found, and genuine tea plants were raised in my garden from seeds in 1835.

China root (Rhubarb?) and lignum aloes are mentioned as the produce of Sylhet in the "Ayin Akhbari," but I never heard that either engaged the attention of the trader.

Land Tenures and Revenue.—The tenures in Sylhet being derived mostly from the Mahomedan government, are similar to those of Bengal generally; but the condition of the land, which is subdivided to an extent elsewhere unknown, excites the attention of every intelligent inquirer. The permanent settlement included Sylhet, and about that time there were I think 27,000 proprietors enrolled in the Collector's books, since when, in consequence of subdivisions which have been facilitated rather than checked by the law, the number has more than trebled, and a revenue of three and a half lacs is now collected from a hundred thousand proprietors. The only species of holding which seems unknown in Sylhet, is that of the village community, or Bhya chara, and this is the more remarkable, as something very like it still exists in Kachar and Assam, and there seems so much reason to believe that it attained over the whole of Sylhet, as a part of the ancient Kamrup; indeed I think it will be found that it is to the breaking up of these communities, by admitting the individual holders to engagements with the State direct, that we must attribute the origin of the extraordinary number of petty holdings in this district. Notwithstanding the existence of some tenures of a different character in Assam, the most ancient form in that country, apparently, by which land was held, was under a grant from the prince addressed to a body of proprietors, who by it were erected into a corporation, called a Raj, and who possessed the land on terms by which they were bound each for the other, and for the revenue of the whole estate. In Kachar this is unquestionable, and indeed up to a recent period no other form of tenure was known or acknowledged. The pecuniary wants of the late

Rajahs led to the introduction among the Raj of titles borrowed from the Musalmans, such as Chrowdries, &c., but the ancient grants were directed only to the Bur Bhuyiah and Bhuyiah's, names which clearly refer to the soil (भूई) though they are not current beyond these countries. In every Raj were certain classifications of the proprietors, made however without reference to the local positions of their estates, but according as they were charged with the payment of revenue to the prince direct, or to some one in whose favour he had made an assignment. These were called Khels, and the principal among them was the Khilmah, which paid to the Rajah, while all the others, as the Sang-jurai, Dekha-jurai, &c. after paying a fixed proportion only to the prince, accounted for the balance to the Ranni, to the Jub Raj, or other holder of the assignment. The local administration and execution of the prince's orders were anciently intrusted to the Raj, subject only to an appeal to the Raja, and they had the power to settle land on terms similar to those by which they themselves held, transacting business in periodical meetings.

I cannot detail the steps by which the power, consequence, and very nature of these corporations were destroyed; but content myself with observing, that there is unquestionable evidence of the state of things I have described still extant in the country, while it is certain that the late Raja completed their subversion, and left to the Rajes nothing valuable but the name, by assessing each landholder according to the full extent of his cultivation, abolishing all local jurisdiction and authority, whether in judicial or fiscal matters, and reducing all the proprietors to a footing of equality; though he still most inconsistently held them responsible collectively for the revenue of their Khels, making over the estates of defaulters to their management after they had in effect ceased to be a corporate body.

Under every change the proprietors still retained their hereditary right in the soil, and the locality of each holding was ascertained from time to time by measurement, as the shares and boundaries of individuals varied continually under the influence of the laws of inheritance, though the boundaries of the Raj remained unchanged, unless by a special grant made by the authority of the prince to a new corporation out of the unoccupied waste. Much of the cultivation, at least since the decline of the kingdom from its former consequence, was performed on the smaller Taluks by the holders themselves, assisted by their families, but the larger proprietors leased their lands to Packhastyuts, retained some portion to be cultivated by their slaves, and assigned another to their hereditary Ryots, a class of people whose position was analogous to the Khudkhast Ryot on the one hand, and to that of agricultural slaves on the other; for while they had a right to cultivate at fixed rates, and could not be removed, they were at the same time not only answerable for the rent, but not at liberty to throw up their lands, or quit the property.

I have been thus prolix in describing the Kachar tenures, because I think that an interest attaches to them on account of their antiquity, and because to them I think the existing tenures in Assam and Sylhet may with truth be traced. I conclude that the land in the latter district while it formed a part of Kamrup, were held by Raj corporations precisely similar to those of Kachar; as the Mahomedan conquerors advanced, they altered the old state of things by admitting the members of the Raj to engage individually for the revenue; or still more frequently by making grants to Musalman chiefs and colonists, who soon found it their interest to compound with the ancient proprietors, and accept a portion only of the Raj land, in preference to having the whole thrown on their hands denuded of cultivators, who rather than remain on their hereditary estates in the reduced condition of Ryots, would emigrate to the eastward. The portions given up by the old occupants would consist of shares of each Taluk, not of a parcel under continuous boundaries; and hence probably arose the strange intermixture of the lands composing the estates of the leading proprietors in Sylhet, which are commonly found in numerous small parcels, at great distances from each other. Acquisitions made subsequently by purchase or inheritance, with the practice of allowing all lands belonging to one proprietor to be recorded in the Revenue Offices under one number, without reference to their locality, would of course in time swell the number of these isolations.

It had always been the custom to regulate all revenue demands on the land where the separate holdings were so very small, by a measurement made with more or less accuracy; and accordingly at the formation of the perpetual settlement in Sylhet a departure from the general rule by which such measurements were at the time prohibited, was sanctioned in that particular district. By the records of that survey, and consequent arrangements, it appears that only that portion of the district which was known to be occupied, and to which proprietory right distinctly attached, came under settlement, and though much of the land measured was recorded as *junglah;* recent surveys shew that there must have been vast tracts of waste, which were not included in the operations of that time. The cultivation of these wastes has given rise to a legal question, which has employed the talents, and engaged the attention of some of the ablest civilians of our day. It is well known that by the provisions of the permanent settlement, the right of government to derive an increase of revenue from an extention of cultivation on the estates then settled, was declared to be given up for ever, and it was even added, that the advantage of this declaration should be conceded to those whose lands had been withheld from assessment by fraud, collusion, or mistake. But wastes which at the time of the settlement were not included within the known boundaries of any estate, could not by any possibility be contemplated in this arrangement; and as it was known by general inquiries, which have since been confirmed by actual measurement, that the quantity of land under cultivation in Sylhet far exceeded the total on which the settlement had been concluded, it was quite clear that an acquisition had been made from the waste to which the government right for revenue would apply. Such lands have been called *Halabadee,* and have formed the subject of a most voluminous and intricate correspondence among the revenue officers for many years.

The right of government to revenue from lands which have been reclaimed from the waste, and not included under the settlement, is admitted by all who have made themselves acquainted with the subject, but the difficulty is, to distinguish such lands; and its possibility is by some authorities wholly denied. On the part of the government it is urged, that documents founded on the old survey are still in existence shewing the superficial contents of each estate at the time of settlement, and that if on a measurement a Taluk is now found to contain more land than the gross amount *(abadee* and *junglah)* for which it was assessed, there can be no doubt that the excess has been derived from the waste, and indeed it does not appear, primâ facie, that it could well be derived from any other source.

On the other side it is answered, that the documents alluded to cannot be relied on, and that even if they were worthy of more credit than can be conceded to them, still it would seem a good argument against a demand for increase of "jumma," if the Talukdar were to urge that the total quantity of land in his estate was put down originally too small, either in consequence of "fraud, collusion, or mistake." To this it has been rejoined, that there is of course no intention to deny the validity of such an objection in every case when it shall be satisfactorily established by evidence; and the parties seem thus to be at issue on the point, whether the revenue officers having shown that there is an excess of land, it rests with the Talukdar to prove that this excess was within his original boundary, or with the government to go one step further, and shew by additional proof that it was acquired from the waste.

In the course of this inquiry some documentary evidence was brought to light, calculated to facilitate the latter course of proceeding very much. This was contained in certain records prepared soon after the settlement, and shewing the boundaries, locality, and estimated extent of the waste lands which had been reserved from the settlement. These papers were very incomplete, and did not include the whole of the wastes; but on a measurement of the lands indicated by them, a very considerable quantity of cultivation was elicited, upon which the claim for revenue was admitted, and a much larger quantity on which it was nearly certain it could be established. I have had no opportunity of learning the result of these inquiries, having been removed from the district before they were completed.

The revenue of Kachar was derived, at the time of its acquisition by us, from a land tax levied at a rate much higher than that of Sylhet, from customs levied on all the frontiers at most extravagant rates, from a sort of excise taken at all Bazars, from monopolies of every thing valuable in trade, as ivory, timber, &c. and from a house tax on the inhabitants of the mountains. The first steps taken for the reform of this department were, the abolition of all monopolies, the removal of all prohibition on exports and imports, the abolition of the excise, and the reduction of duties in the external trade. The immediate results were, an increase of trade, the customs on which, though levied at very reduced rates, yielded a far larger amount than under the old system was obtained from the whole of the Sayer Mahal, and I think this branch of revenue quadrupled itself in five years, thus affording another verification of the principle in finance,—that low duties by encouraging consumption, will be found more productive than high ones, which on the contrary check it.

The sources of revenue in Jynta were very dissimilar to those of Kachar, as the Raja of that country having acquired the plains by conquest, appears to have abrogated the hereditary rights of the landholders, and to have allowed none to hold except on terms annually granted or renewed at his pleasure, and which were very various. The plains of Jynta were probably conquered from Sylhet since the days of Akbar, one of the Mahus in the "Ayin Akhbari" being called Chyntar, which may well be a mistranscription, the Persian letter ح having been mistaken for چ.

History and people.—My notices of the history and people of these countries will necessarily be brief, as I do not propose to record the story of their petty dissensions and change of governors, but rather to collect and point attention to such facts whether derived from tradition or otherwise, as may throw light on the origin and migrations of the races which inhabit them, and this the more especially, as I am not aware that in so doing, I shall suppress any thing of real interest.

Kacharis.—According to records preserved among the family of the last princes of Kachar (which however are but traditions reduced to writing) the Kacharis conquered the kingdom of Kamrup, and gave to it a succession of Rajas from whom the late royal family of Kachar, of the line of Ha-tsung-tsa, derive their descent. The term Kachari is of modern date, the proper name by which that people call themselves being Rangtsa, and the country from which they trace their origin being situated in the north-east of Assam.

It is known that Kamrup extended anciently to the southward as far as the confluence of the Megna with the Brahmaputra; and the Kacharis appear to have established themselves in the countries east of that line, including Assam, Sylhet, Tippera, and modern Kachar, or Hirumbha, in all of which, except Sylhet, they are found as a distinct people differing in appearance, religion, and customs from the other inhabitants.

The Ha-tsung-tsa family was expelled from Kamrup by the Rajas of Kooch Behar, and being driven* into Hirumbha maintained themselves in a reduced but independent form until the time of Raja Gobindchundra, who after many vicissitudes of fortune, became in 1824 a British tributary, and being murdered in 1830, and leaving no blood relations, terminated the line.

The people of Tippera are said to have the same origin with the Kacharis, and the similarity of religion, customs, and appearance, makes this probable. It may be added, that the Rajas of both countries have formerly acknowledged the connexion; the Tippera family being described as a younger branch of the ancient royal family, which in their expulsion from Kamrup established itself independently in the country which it formerly held as an appendage.

The dates of these transactions cannot be traced, but the Assam Baranjis state, that at the commencement of the Ahom dynasty in upper Assam, in the 12th century, the Kooch Behar princes had possession of Kamrup, from which, as well as from the date of the first Mahomedan expedition into Kamrup (in 1204) it may be concluded that the subversion of the Kachar dynasty considerably preceded that era, and that the assertion made by the Kachar chiefs, that their ancestors conquered Assam about one thousand years ago, is tolerably correct.

The existence in Kachar, even in these days, of many poor and proud families who disdain to labour for their subsistence, and look to official employment alone as a becoming source of livelihood, the number of offices, and their nature, so inconsistent with the poverty and insignificance of the late petty Court, are among the circumstances which attest the credibility of the story of former power, and taken with traditions current in these countries, entitle the pretensions of the Kacharis to a degree of credit, which they would not otherwise deserve.

The Kachari language is unwritten, having been superseded for all purposes of business by the Bengali for many centuries, and this circumstance greatly increases the difficulty of all attempts to trace the origin of the people through that medium. Greater probability of success offers through a careful examination of their religion and customs, on which points my inquiries will, I think, be found not to be without use. Although Brahmanism professes to receive no converts, yet great efforts have been made to bring within the pale of Hinduism both the Kacharis, the Munipories, and most of the tribes to the eastward. It is matter of history that Brahmanism had no root in Assam earlier than the middle of the 16th century, though it has since attained to such power as to shake the throne of that country. In Munipore its progress has been still more recent, but in Kachar Proper, or Hirumbha, the process of conversion has been going on before our eyes, and actually commenced within the last fifty years. The father and uncle of the two last Rajas professed the old religion, and did not conform to Brahmanism; but Krishna and Gobindchundra, about the year 1790 A. D., were both placed, with certain ceremonies, in the body of a large copper image of a cow, and thence produced by Bengali Brahmins as reclaimed Hindus to an admiring people. Place was assigned them as Chhettry of the Suraj Bungsi tribe, and numbers of their followers, after their example, were admitted to caste, and are called Hindus; but still greater numbers were infinitely disgusted at the whole procedure, and there can be little doubt that the divisions to which it gave rise, and the injudicious persecutions by which it was followed, were at the root of all the misfortunes by which the country was soon visited.

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* The tradition is, that the invaders from Kooch Behar were preceded by Brahmans mounted on cows, against whom the Kacharis either could not, or dare not, oppose themselves; but this is obviously a Hindu fiction.

The ancient religion of Kachar is not clearly referable to any of the forms existing in Eastern Asia, and certainly not to any of the Hindu systems, as will appear by the following account. The Kacharis acknowledge a Supreme Being, or first principle, from which the world and all that it contains is derived. They worship the manifest powers of nature, or rather spirits having authority over them, and the influences of the seasons.

No superstitious regard is paid to animal life, and even the cow was not anciently held sacred.

There is no class set apart for the priesthood, neither do any take upon themselves exclusively sacerdotal functions; but these are performed by the elders in families, and by the ministers of state, and high public functionaries, on great public occasions. There was however one officer who had charge of the series of ceremonies performed in the spring of the year, but his duty was abolished by the jealousy or bigotry of the late Rajas. Among their superstitions, it is the practice to perform sacrifice before a bamboo planted in the ground, and into which it is maintained the Power worshipped enters, on being duly propitiated, and causes the boughs to bend in token of his approbation. This custom is common also to the Tipperas.

The indifference shown for animal life, and the absence of an established and hereditary priesthood, mark sufficiently the disconnexion with Hinduism, and the disregard for caste may be taken as an additional proof of this; for though the people are divided into forty Sympongs, these are only so many social distinctions, or tribes, and they are not prohibited from intermarrying or eating together, which they accordingly frequently do. All these circumstances considered, it will be found that this superstition more resembles the system of Confucius than any thing Indian.

The law of inheritance appears to be, that all property descends in equal shares among the male children, and afterwards, in the natural order of succession, to the brothers and brothers issue; but as the leading men formerly made no acquisitions in land (for the Kachari cultivation is carried on by the inferior classes in a species of coparcenary) the subject has not given rise to much investigation. Marriages seem to have been contracted spontaneously, without the direct intervention of friends, but polygamy was allowed, and by the richer classes indulged in to a great extent. The marriage of widows was sanctioned, though not encouraged, and in order to escape the scandal of such connexions, it seems to have been usual for widows, at least among the higher ranks, to reside in the families of their deceased husband's brother, by which it has after happened that more scandal was created than it was intended to avoid.

Among peculiar customs, for which no reason appears, it seems to have been a rule that the Rajah should never reside in a building of masonry, but in bungalows surrounded by a stockaded enclosure, perhaps to remind him of his origin among the woods of upper Assam.

The worship of irascible female spirits, and the practice of the Tantra magic ascribed by the Hindus to the people of Kamrup, are imputations which derive some countenance from the existing worship of

Ramchundi, the Thakoorain of Kachar, who is adored under the symbol of a sword, religiously preserved in the Rajbarri, and to the possession of which the most inexpressible importance is attached. It is worthy of remark, that no image of any thing having life is worshipped in Kachar, nor are there either in that country or Sylhet any remains of antique buildings, and especially of Hindu buildings, to attest the existence at an early date of a Hindu population. There is a footstep cut in the rock on the ridge east of Aquee, said by the people of both Kachar and Munipur to have been made by the gods as a boundary mark between the two states: this may be one of the numerous footsteps of Gautama, but there is obviously no certainty about its antiquity.

Kasias.—Among the aboriginal tribes, the Kasias, or more correctly (as they style themselves) the Khyee, attract the most attention, standing as much distinguished from their neighbours in personal appearance, and social and religious customs, as their country is different from others in geological structure and physical aspect. The Khyee are an athletic race of mountaineers, fond still of a martial appearance, and their reputation as warriors is hardly extinct, as their extensive feudatory inroads are still remembered in Sylhet and Assam, the plains of which countries they formerly laid under contribution very frequently. The religion of the Kasias does not assimilate with any of the known Indian systems, but is limited to certain superstitious practices (among which the augury seems to be in greatest esteem) and to the reverence for, and sacrifice to, the presiding deities of villages, hills, and similar localities, but does not comprehend the knowledge of a universal, all-pervading Intelligence, such as is acknowledged by the Kacharis, or the immortality of the soul. Brahmanism has made some progress among the Kasias, especially of Jynta, and some of the higher classes there have adopted Hindu practices, and obtained admission among the Sudra castes, but this has not led to the entire abandonment of their national superstitions, connected with which was the cruel abomination of human sacrifice, for being accessory to which the last Raja lost his throne and country.

The great peculiarity among the Khyee, and that by which perhaps their remote connexion with other tribes will be established, is the custom which prevails in regard to the descent of both personal and real property, and which holds equally of regal authority. By this all property and right passes to the eldest son of the nearest female relative in the descending line, or generally, to the son of the eldest sister of the holder. Whatever laxity may be observed in regard to other practices, and however some of the upper ranks may conform to the rules of caste, and desire admission among the Hindus, this custom is by all most tenaciously adhered to. They are further charged with the practice of polyandry, but however it may in reality be tolerated, the upper classes in general disclaim it, and it can be said to prevail only among the poorer sort, with whom too it would often seem to mean rather facility of divorce than the simultaneous admission of a plurality of husbands. It is possible, however, that unqualified polyandry existed formerly, and that it has fallen into disrepute since a more intimate connexion with the plains has sprung up.

The Khyee language is unwritten, and moreover exhibits no affinity with any of the languages of the neighbourhood, some of which, (numerous and diversified as they are), often offer indications of a common origin, but the point is of less importance, as among the rude mountain tribes great dissimilarity of language has been observed to exist, even where a common origin was nearly certain. There are no antique remains, or works of art, on which to build conjectures as to the condition of the people by whom the country was anciently occupied, for though there are several considerable rude stone columnar erections, yet there is nothing peculiar or artificial in their construction, and they are exceeded in magnitude and vastness of design by Stonehenge, and by the Masses seen in Mexico. No mechanical contrivances were employed in raising either these columns, or the circular slabs which are often met, but they were constructed by manual labor, some of them being of recent times. There is however a stone bridge of considerable dimensions in the Jynta mountains, the style of which is Saracenic, but it is quite possible the work may have been constructed by a Mussulman in the employment of the Raja at no very distant period. No great respect is paid by the Khyee to hereditary chiefs, though their rank is readily admitted, but their influence depends more on their personal character, and their power to guide the public assemblies, without which nothing is decided either among the community collectively, or the villages separately.

Destruction of human life, whether by accident or design, in open war or in secret, is always the cause of feud among the relations of the parties, which are terminated only by reprisals, or a compensation in money.

The equipment of a Khyee chief is martial and striking in appearance; a tunic of strong cloth, bordered by party colors, without sleeves, well adapted to muscular exertions, sits close to his body above the waist; an ample shield of buffaloe hide or brass is slung at his back, and leaves him at liberty to employ both his hands either with the bow, the javelin, or a powerful two-handed sword which hangs by his side. This sword is unique in kind, and more like the German or Swiss weapon than any thing Indian. The bow is of bamboo, and is fitted with a slip of the same substance in place of twine, as it never softens in rain, and is equally useful in all weathers. It is to the credit of the Khyee that though acquainted with the use of poisoned arrows they never employ them against their fellow men in war, but only in the chase against wild beasts. A series of destructive defeats during a protracted contest with the Government troops has not entirely destroyed the martial disposition of this people, who probably still retain the remembrance of those days in which their fathers pillaged both Sylhet and Assam.

Conjecture is lost in assigning a probable origin to the Khyees. Segregated strictly in a tract of country as different from the neighbourhood as they themselves are from the other tribes, they seem to owe the retention of their independence entirely to their personal qualities, as their mountains are by no means difficult of access. I am quite sensible that verbal analogy affords but a slight foundation on which to build an hypothesis, but I may nevertheless mention, that a people resembling the Khyee in some particulars formerly occupied a position on the south bank of the Brahmaputra at Measpara, where they were called Mek; they were known to have come originally from the frontiers of Butan and Nipal; the Khyee are called Mike by the Kacharis, and their customs in regard to marriage assimilate to those of Butan. The theory which would assign a western origin to the Khyee is countenanced by their appearance, and especially by the absence in them of those peculiarities about the eye which stamp the tribes of Indo-Chinese origin.

Nagas.—The Nagas are found in all the tracts east of the Kupili River, as far as the country of the Khamtis, much of which is unexplored. This generic name seems to have been applied to them by the Hindus of the plain, with reference either to their scanty clothing, or more probably to their residence in the mountains, but is not acknowledged among themselves or the other hill tribes, among whom they call themselves "Kwaphee." They are associated commonly with the Kukis or Koonjye, from whom however they are essentially distinct in customs, and personal appearance. The Nagas though often powerful men, yet do not commonly display those marks from which great strength may be inferred. Their limbs have not the massive configuration of the Kukis and other hill men. It is a distinguishing particular of the Naga tribes that they are not a migratory or wandering people, and while the hill Kacharis and Kukis continually change their locations, seldom keeping their villages more than three years in one spot, the Nagas remain fixed, and their insignificant villages, which appear in one of Rennell's early Maps, are to be found still as they stood in 1764. Again, the Nagas are remarkable as using no weapons but the javelin and dao, a sort of bill common to the Birmas, Shans, and most of the hill tribes except the Kasias; and they have no prejudices on the score of food, eating every thing indiscriminately, as well that flesh which has been slain for food as that which has not. In common with the Kukis and Garrows however they abstain strictly from milk, butter, or ghee, looking on the use of them with great aversion. The religion of both tribes is limited to a few superstitious practices, differing among themselves, but presenting nothing from which their origin or connexion with other tribes is to be inferred.

Kukis.—The Kukis have long been notorious for their attacks on the peaceable inhabitants of the plains, to whom along the Sylhet and Kachar frontier they have at times been very troublesome. In addition to the javelin they employ bows and poisoned arrows, a practice perhaps suggested by their contests with the larger animals, as elephants and tigers, with which their forests abound. The object of their inroads on the plains is not plunder, for which they have never been known to shew any desire, but they kill and carry away the heads of as many human beings as they can seize, and have been known in one night to carry off fifty. These are used in certain ceremonies performed at the funerals of the chiefs, and it is always after the death of one of their Rajas that their incursions occur.

The proper limits of the Kukis are undefined, but they never seem to have stretched northward of Chattrchura peak, and Kukitunga on the frontier of Sylhet, nor above Soor and Tungtching in Kachar. The villages at Abong in Upper Kachar are exceptions, but they are well known to have been settled by Raja Krishnachundra with Kukis from the southward, who had sought his protection. The Kukis have been accused of cannibalism, and I am aware of an instance in which the charge seemed substantiated, but they disclaim the imputation with much vehemence, and I have seen no reason to think that the practice is frequent among them

People of Sylhet.—The inhabitants of Sylhet are Bengalis, and not distinguishable from that race in the districts to the westward. On a closer examination, however, it will be observed that the lower classes, especially the inferior castes of Hindu cultivators, bear marks of their indigenous origin, and a striking difference may be remarked between their features and those of the Musulman descendants of the colonists by whom the country was gradually conquered. The few families of any consideration in the district are known to be of Hindustani or Persian origin, and these are the most respected, though they have been superseded of late years by one or two considerable Hindu houses, which have acquired fortune and consequence in our service. There are also some Musulman families, descendants of chiefs or Rajas under the Kamrup dynasty, who were forced to conform to Mahomedanism on the change of masters; of these the principal is that of the Baniachuny Raja, whose ancestor was probably the party conquered by Esau Afghan, in the reign of Akhbar, when "the kutbeh was read, and the coin struck in the Bhatta country," according to Abul Fuzil. It must have been a Raja of the same family also who was attacked in 1254 A. D. by Mulic Yuzbeg, the Governor of Bengal, who afterwards lost his life in Southern Assam, or rather in the mountains between Assam and Sylhet. The family though converted to Mahomedanism has always retained the title of Raja: it is fast going to ruin under the joint influence of the laws of inheritance and improvident habits.

It is impossible (and if possible would be tedious) to trace the steps by which the progressive conquest of this part of Kamrup was effected, but some of the principal may, I think, be satisfactorily established, and will be found worthy of attention. The earliest Mahomedan invasion is that of Mahomed Bukhtiyar, who is said to have penetrated through Kamrup into Thibet in A. D. 1205-6; and as I think his expedition, though unsuccessful, called forth a display of energy and talent calculated to excite our admiration of these early adventurers, I shall offer no apology for attempting to elucidate it.

Mahomed Bukhtiyar was the Governor of Behar, and in 1203 A. D. entered Bengal, and having rapidly overcome that country, he immediately turned his forces against Kamrup, which appears to have been then a powerful kingdom, and worthy of his arms. The accounts of his expedition, left us by Mahomedan writers, state that he proceeded from Dacca, opening for himself a road along the banks of the Luckia; that he marched under the guidance of a hill chief, of the tribe called Koonch, whom he had converted to Islamism; that they reached a mighty river "three times as wide as the Ganges" called the Bangmuttee, on which stood a city called Burdehund, which he captured; that after marching ten days along the banks of this river, they entered the defiles of the mountains, having passed which, they crossed the river (Brahmaputra ?) by a stone bridge of twenty-two arches, after which the Raja of Kamrup submitted. He then moved into the Butan mountains, and reached the plains of Thibet, where his army was so roughly handled in a battle with the people of the country, and alarmed by an expected attack from the chief of a city called Kerrimpatan, which was governed by a Christian, having under him a Butia population with Brahman officers, that they retreated, and finding the bridge broken down by the Kamrup Raja, who now harassed them in every way, they returned, utterly discomforted with the loss of the greater part of their number, to Bengal, where Mahomed Bukhtiyar died of grief and vexation. I must own the latter part of this narrative is quite inexplicable on any hypothesis, except that of the fancy of the writers, or their desire to account for a defeat which was most likely the consequence of disease and privation. But the first part admits of some explanations, calculated to remove apparent inconsistencies, and to render the story up to the passage of the bridge sufficiently credible. The points which demand elucidation are, the locality of the Bangmuttee and its extraordinary size; the stone bridge of twenty-two arches; and the name of the river over which it was thrown. In the narrative three hill tribes are mentioned, the Koonch, the Mikah, and the Nadera; the Koonch it has been supposed are the people of Kooch Bahar, but however this may be, there is no difficulty about the Mikah, that being the name by which the Kasias at this day are known among the Kacharis; and *Mikedeetah* being the title of an officer who had charge of the frontier with that people, and such of them as occasionally took up their residence within the Kachar jurisdiction; and as it is expressly stated that the Mahomedan army *crossed the mountains, before* they reached the bridge, and before the Raja submitted, I conclude, that they entered Lower Assam, not by Goalpara, but by the Kasia or Kachar mountains. The river, three times as wide as the Ganges, could not have been the Brahmaputra, both because Mahomedan writers shew themselves acquainted with that river, and because no one who had seen the rivers about Dacca, could ever fancy the Brahmaputra above the Luckia to be even wider than the Ganges; but to reach the Kasia Hills, they must have marched along the edge of the inundation in the Bhatta country, most likely before the waters had much abated, and they mistook that for a river.

No river called Bangmuttee (burster of earth) is now known in the north-east parts of Bengal, but there is a place called Bangha, which derives its name, without question, from its position at the fork of the Soorma and Kusiara rivers, where the latter *bursts* from the former and rushes towards the Bhatta country. It should here too be remarked, that Bhangh (ভাঙ) means to walk through water or mud, as well as to burst or break, and the expression therefore is applicable to the inundation. As the guide was called Ali Mikah, I conclude that he was a Kasia, and led the army over his native mountains to some point on the Burrampootah, where a temporary bridge, composed of timber, supported on pieces of rough stone, might be erected, and where the breadth would not be so great, but that in the dry season twenty-two arches might suffice for the passage over the actual stream.

If any doubt should still be entertained, that the first Mahomedan expeditions into Kamrup and Assam passed through the mountains north of Sylhet, I may mention, that in 1256 A. D. Malec Yusbeg, who had invaded Kamrup from Bengal, was killed while retreating "across the mountains;" and that between 1489 and 1499 Ala-Udin, having "*first overrun Assam*," proceeded westward to the conquest of Kamrup, which course is impossible on any other supposition, than that he entered Assam by the way either of Hirumbah or Sylhet, most likely the former.

Mahomed Bukhtiyar's army consisted of ten thousand men, chiefly Tartar cavalry, and that he was able to subsist them, proves that the countries through which he passed must have been well cultivated; but when we reflect that this expedition was made before the invention of fire-arms, and that the invaders had therefore no advantage over the people of the country in regard to their weapons, while the country is in no part favourable for cavalry, we cannot but feel our respect for the skill, energy, and enterprize of the early Mahomedan conquerors of India considerably elevated.

The condition of Sylhet, as noticed in the Ayin Akhbari, with the fact formerly noticed, that the Bhatta country was only recently conquered, proves that in the time of Akhbar, the district had not acquired above one half of its present dimensions, and this supposition is confirmed by Sunnuds bearing date in the 15th and 16th centuries, shewing that adventurers were encouraged to make war upon "the infidels" on the frontier, and that lands were granted, of which they were to obtain possession by force. The town of Sylhet existed in the time of Akhbar, and as this is known to date from the Mosque built over the tomb of Sha Gelaal, its patron saint, who conquered it from a native Raja, we may assume, that the current tradition, which assigns its erection to the middle of the 13th century, is correct.

The first appearance of the English power occurs in 1762, when a detachment of five companies of Sipahis under the direction of Mr. H. Verelst marched from Chittagong under the Tippera Hills through the southern part of Sylhet into Kachar, where they remained nearly a year, encamping at Kaspur, then the capital and residence of Raja Hurrishchunder. After a lapse of seventy years the object of this march had been forgotten, except by a few old persons, who stated that it was for the conquest of Manipur, and this statement has proved to be correct, the researches of Captain Pemberton having elicited the original treaty concluded with the chief of Chittagong, under which it was agreed that the Raja Jy Sinh of Manipur, who had been expelled by the Burmans, should be restored by us on certain conditions, chiefly of a commercial nature. The expedition was prevented by the difficulty of the country from proceeding beyond Kaspur, and was recalled to assist in the war against Kasim Ali Khan.

In 1774 a detachment under Major Henniker was employed against the Raja of Jynta, whose country was conquered, but restored on payment of a fine. The cause of this collision is supposed to have been connected with the marauding habits to which the Kasias were then addicted, and which had not yet been suppressed.

There is but one point of general interest untouched, upon which I wish to offer a few words before concluding this very long paper. Slavery has always existed in these countries, and the number of persons in that unhappy condition is very large. In former days there is no doubt great atrocities were committed in regard to this matter, whole families of hill people being sometimes carried off openly, sometimes kidnapped, and sometimes brought under the pressure of famine, an evil of frequent occurrence among the hills. Even in our days a regular traffic was carried on in slaves, numbers being annually exported from Kachar to Aracan through the British territories. This was brought to the notice of the Civil authorities some years ago, and effectually checked for the future; but the law still permits domestic or local slavery, though it prohibits exportation, and while the hill people continue to make war on each other, and to sell their children in times of scarcity, perhaps it is only a wise discretion, which allows the existence of this great moral blot on society. But apart from legislative provisions, there is a course by which the evil might be gradually eradicated, while prodigious benefit in another shape, would at the same time be conferred on all the countries in which it exists. This is the formation of an establishment for the purchase and manumission of slaves, more especially of children, which are often sold at very low prices. These well brought up, and instructed in the useful arts, as husbandmen and artizans, would in a few years become the means of operating a great improvement in the social condition of the people among whom they would spread, and to whom they would offer the sort of information which is required to elevate them in the scale of civilization, by the example of superior morality, intelligence, and well directed industry, which they might be expected to exhibit.

The number of people in all these districts is on the increase, in a country where every thing tends to encourage increase, and where the checks, both positive and moral, are as entirely absent as they appear to be in China. The census* taken in 1820, shewed the inhabitants of Sylhet had more than doubled since 1801, and if little dependance can be placed on the accuracy of these returns, enough is known from other sources to warrant the belief of an enormous increase. The quantity of land brought into cultivation, and the creation of new estates by the subdivision of the old ones, are among the most unquestionable proofs of this assertion.

Whatever doubts may be entertained, reasonably or otherwise, of the advantages resulting to India from the rule of Britain, I cannot omit to record my humble testimony to its value in this quarter, or to state my belief that as in no other parts which I have visited, has that rule been more manifestly exerted for the good of the people, so in no other has it called forth more unequivocal marks of loyalty, attachment, and confidence; and far off may the day be, when these shall abate. In proof of this, I may notice the behaviour of the people during the invasion of Kachar in 1824, by the Burmans, when they advanced to the very frontier of Sylhet without in any way affecting its tranquillity. But in a more trying emergency, when the British troops were withdrawn for the protection of Dacca, the people of Sylhet not only remained loyal, but an offer was actually made by some influential men to raise a levy *en masse* with which to oppose the enemy, and a small force was actually embodied, the men of which, by their local knowledge and endurance of climate, proved of considerable use. The readiness with which these took service at such a time, must be laid to the account of some deeper feeling than ordinary (for their homes were on the very frontier), and that unquestionably was the dread of the devastation which accompanied the Burmese advance; but if the existing Government had been unpopular, all would have been at least indifferent at a change of masters, and some certainly would have intrigued with the enemy. But nothing of the kind occurred, and I even succeeded in inducing some who had been released, after falling into the enemy's hands, to return and act as spies on our behalf, at the risk of every thing which a Hindu (and these were Brahmuns) values more than life.

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* In 1801 number of persons, 492,945. In 1820, number of persons 1,083,720.

On the other hand, many of the inhabitants of Kachar disgusted and worn out by the oppressions of their native chiefs, did coalesce with the Burmans, thereby proving that their dread of that sanguinary people could be overcome by their sense of the intolerable character of the Government under which they were groaning, and that they had reached a point in endurance, at which any change appeared for the better.

Memorandum on the Silk Trade between Shikarpore and Khorassan, and on the produce of Indigo in Sinde. By Lieut. J. Postans, *Assistant Political Agent, Upper Sinde.*

The importation of raw silk from the north-west to Shikarpore is one of the most important branches of the import trade from that direction; the article appears to be of a superior description, and as I am not aware of its being known in the Bombay market, I have collected the following particulars to accompany samples.

The following are the descriptions of the raw silk, with the prices of each in the Shikarpore Bazar, import duty paid (at one rupee six annas per maund).

No. 1. "*Kokanee,*" from Bokhara (produced in Toorkistan) price 10* Shikarpore rupees per *assar*.

No. 2. "*Toonee,*" from Kerat (produced in Toorkistan) 13 Rs. 12 annas per *assar*.

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* Silk raw and in thread, prepared, is weighed at the rate of 90¼ Shikarpore rupees, or 1 assar, or 88 Company's rupees last coinage. The Shikarpore rupee at present is worth 94¾ Company's per 100 Shikarpore, or 5¼ per cent in favour of the former.

No. 3. "*Shal bafee,*" from Kerat (produced in Toorkistan) 15 Rs. 10 annas per *assar.*
„ 4. "*Nawabee,*" from Bokhara, do. 14 Rs. 12 annas per *assar.*
„ 5. "*Gheelanee,*" from Kermare and Fezed, do. 9 Rs. per *assar.*
„ 6. "*Kaloocheer,*" from Kerat do. 9 Rs. per *assar.*

The value of annual imports may be about 50,000 rupees, and the route is through the great pass of the Bolan; the traders are principally Affghauns, who visit Shikarpore with the annual Kaffillas from October to March, though much of the article is purchased by the Hindoo agents of the Shikarpore sowcars, who are to be found in all the important cities and marts of the north-west, (see Sir A. Burnes' report on the trade of Shikarpore.)

Nos. 1, 2, 5, 6 of the raw silks above enumerated, are prepared for weaving, and dyed at Shikarpore. The *Shal bafee* and *Nawabee,* Nos. 3 and 4, are manufactured at Roree, on the opposite bank of the Indus, into a silk fabric, known as "*Duryaee,*" value at Roree, 7 annas per guz. The silk thread prepared at Shikarpore, and hereafter enumerated, principally finds a market at Khyrpore, Sukkur, Roree, Larkhana, Gundava, Bagh in Cutchee, and towards Lower Scindh, as far as Sehwan and Tattah, where it is manufactured into "*Loonghis*" of various descriptions, "*Gul-buddums,*" and other fabrics used in the country. The raw material, or prepared thread, does not appear to enter into the export trade of Shikarpore, with the marts of the neighbouring countries.

List of prepared silk threads from the raw "*Kokanee.*"

No. 1. "*Pestakee,*" yellow, Gooljuleel, (Mettilat) dye, price 20 Rs. per *assar.*
„ 2. "*Chumunee,*" light green, mixture of Indigo with the above; 20 Rs. per do.
„ 3. "*Subz,*" dark green do do. do., 20 Rs. per do.
„ 4. "*Soormar,*" Indigo do. 20. Rs. per do.
„ 5. "*Koombar,*" orange, Koomba (safflower) dye do. 28 Rs. per do.
„ 6. "*Tillar,*" deep yellow (light gold) Koombeera? dye do. 16 do.
„ 7. "*Koormis,*" cochineal dye, crimson, do. 21 Rs. 12 annas per do.
„ 8. "*Ucho*" white, undyed do. 20 Rs. do.

List of prepared thread from the raw "*Toonee*".

1. *Pistakee,*
2. *Chumunee,*
3. *Subz,*
4. *Ashmanee* (light blue Indigo)
5. *Achoo,*

Same dyes used as the above, price 24 Rs. per assar.

6. Three shades of cochineal, Rs. 26-12 per seer.

The raw silks "*Gheilanee*" and "*Kuloochur,*" are not in any general use, "*Kokanee*" and "*Toonee,*" being the principal importations, and the most in use.

The expense of transmitting goods from Shikarpore to the sea, by water carriage, may be easily ascertained, as certain rates have been established by the British Government for freight by packet boats; thus, from Sukkur to Kurrachee Buncher, one Company's rupee per maund dead weight, or one rupee per cubic foot for light goods. The expense of transport from Shikarpore to Sukkur by the Scindh Canal, is $\frac{1}{4}$ rupee per maund, or 2 Rs. per camel, carrying 5 maunds; the export town duties to be paid at Shikarpore. Export duties again at Kurrachee on raw silk would be thus—

1st. Duties on purchasing in the bazar, and clearing the town of Shikarpore, as far as the *Scindh* Canal—Shikarpore rupees 16: 4: 0 per maund.

2nd. Export duty at Kurrachee about 5 Rs. per cent.

A calculation from the above may be pretty accurately formed of the price at which the article would come into the Bombay market; and as it will hereafter be to the interests of the native governments to modify many of the imports which may at present be considered vexatious and offensive upon trade, silk and other commodities from the north-west may, with the advantage of water carriage from Shikarpore to the presidency, enter considerably into the market of Bombay by the route of the Indus.

Memorandum on Indigo.

The important article of Indigo, for the production of which the Punjaub and countries bordering the Indus would appear to possess equal advantages with Bengal and the Delta of the Ganges, cannot fail to attract considerable attention, in connection with the trade of the former river, and will in all probability enter considerably into the return commodities to be looked for from those countries. The following is the amount of last year's crops for the Punjaub, Bhawulpore, and Khyrpore territories, with the present prices, on the spot, of the different descriptions.

In the *Punjaub* estimated quantity 17,700 maunds ; thus produced—

Districts.

1	Dera Ghazee Khan.	Mds.	3,000
2	Sooltan and Gungera.	,,	3,000
3	Gullioon, Jetepore, Noorshera, and Soonwall,	,,	3,500
4	Canals of Sirdarwar and Bahwalwar.	,,	1,200
5	Mooltan and its districts.	,,	5,000
6	Soonadur Mahamad Kot Luwah Bukhur. ...	,,	2,000

In the Bhawulpore territories, 4,000

Districts.

1	Khanpore.	,,	3,000
2	Ahmedpore.	,,	1,000

In the Khyrpore territories, 2,000

Districts.

1	Meer Mobarick.	,,	600
2	Meer Rustam.	,,	300
3	Meer Alli Morad.	,,	900
4	Various places towards Hyderabad.	,,	200

The total may thus be estimated at about 24,000, of which three-fourths find a market in Khorassan, the remainder divided between the home consumption and exports to Muscat and Bombay.

The following is a list of prices at the several places where the article is grown (duties unpaid) at Dera Ghazee Khan, a mixture of five descriptions of Indigo, known as

	Punjmal,	Rs. 45	per maund.
Punjaub.	No. 2	,, 50	,,
	,, 3	,, 52	,,
	,, 4	,, 55	,,
	,, 5 (best quality)	,, 60	,,
	,, 6	,, 54	,,
Bhawulpore.	,, 1	,, 56	,,
	,, 2	,, 58	,,
Khyrpore.	,, 1	,, 57	,,
	,, 2	,, 58	,,
	,, 3	,, 60	,,
	,, 4	,, 55	,,
	,, 5	,, 60*	,,

Not having had the opportunity of inspecting the methods of cultivating and preparing the dye in these countries, I cannot offer any remarks or suggestions on their improvement, but there can be no doubt that there is plenty of room for the introduction of a superior system, as employed by the European growers of Bengal. One is evident, in the necessity of packing it in squares, and not in the present small pieces, whereby much waste appears to be occasioned.

The duties and expenses on the purchase and transmission of Indigo by the river Indus to Bombay may be thus estimated—

1st. In the Punjaub, a duty on the purchase and clearing, of Rs. 4 per maund.

2nd. In the Bhawulpore territories the duty amounts to † Rs. 3 : 8 : 0

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* The maund differs according to the country. Indigo in the Shikarpore market is weighed by the maund of 40 assars, each assar being equal to Shikarpore Rs. 83, or Company's Rupees 79 in weight.

† One-fourth of all Indigo purchased in the territories of Bhawulkhan, is from the Government share of produce, on which a duty of 10 Rs. per maund is levied, whilst the other three-fourths pay at the rate of 1 Rupee 8 annas per maund, making an average of about 3¾ Rupees for the *whole*. (ex-gra;—Thus, of 20 maunds purchased, 5 would pay Rs. 50, and the remainder 22 : 8 : 0, or about 3¾ Rs. for the whole.)

3rd. In the Khyrpore territories the duty amounts to R. 1 : 2, per md.

4th. Independent of the above, the transit duties are thus—

In the Punjaub, at Mittun Kote, Rs. 46 : 4, per boat load.

In the Bhawulpore territories, Rs. 80 ditto

In the Khyrpore territories none. All transit duties on the river through the Hyderabad and Khyrpore territories are cancelled under a " Rahdaree Purwannah" from the British authorities.

The expenses of water carriage to Bombay is calculated by the dealers at about two Rupees per maund from Mooltan, and as the duties levied at the former place are known, an estimate may be formed of the price at which Indigo from the countries bordering on the Indus may be brought into the Bombay market. In Shikarpore this article does not enter largely into the trade, the consumption being only about 100 maunds annually; it passes through Shikarpore, however, in transit to Khorassan by the route of the Bolan pass, but the greater quantity before alluded to, finds its way to Cabul, Bokhara, &c. by the route of the Khybur, or the Daman pass; the latter through the agency of the Lohana traders and their Kaffillas.

On the Historical Geography of Hindustan, and the origin of the Social State among the Hindus. By Jas. Bird, *Esq.*

The state of India previous to the Mohammedan invasion, is a subject of perplexity; as the interested and fabulous narratives of sectaries present but a few isolated facts to guide us in forming an opinion of the original system of Hinduism, civil and religious.

Many, in conducting this investigation, have been more zealous in supporting the antiquity of the present Hindu social state, than in searching after historical truth; and, while unable to explain why the Sanscrit language enters so extensively into the provincial dialects, without granting that it was the primitive tongue, they have contended for the prevalent and unchangeable existence of Brahminical institutions.

In doing so they have overlooked the reasonable conclusion which, sanctioned by the well known revolutions of the world, admits the gradual advancement of Hinduism to its present perfection, and that it was a religion of proselytism little more than nine centuries ago. The known geographical distribution of tribes and nations tends to establish the justness of such an opinion; and the internal evidence of the Sanscrit authorities gives it additional confirmation.*

To suppose that the timid natives of India, who have been subdued by different conquerors, were not, in the early ages of Christianity, a prey to those northern barbarians who successively deluged Europe, seems so at variance with the events of history, that, but for some men's partiality to the antiquity of the present Hindu social state, this opinion could have never gained belief.† The Brahmans and their language were prior to the æra of Alexander's historians, but without the extensive dominion in India that they now enjoy. The far spread remains of the Buddhaist religion, and its sectaries called Jainas,‡ to be yet seen in the caves, temples, and monuments that extend from the neighbourhood of Balkh Bamian, on the N. W., to Mahabatupure, on the S. E., indicate the sovereignty of a faith in these parts, which was prior to the now prevailing Brahminical hierarchy.§

The inferences also to be drawn from the fact, that many tribes called Melchchas‖ in the institutes of Menu and the Puranas, are now within the pale of the orthodox creed, would further establish a progressive change of opinion, and the gradual conversion of the aborigines of India to the *present* established system of religion.*

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* See Mr. H Wilson's late account of the religious sects of the Hindus, and of those Samas, who, as worshippers of the sun, which they esteemed as the creator and cause of the world, were among the opponents of the famous Saiva reformer, Sankara Acharya, who flourished some time between the beginning of the 9th and end of the 10th century (A. R vol. xvi p. 15)

† Cosmas Indicopleustes, who visited India between A D 535 and 547, mentions a nation whiter than the rest, called the Hunni, who held sway over the west of India, and exacted large tributes from the surrounding states (Murray's Asia, ii p 78)

‡ These form a class of dissenters from the established, or orthodox system of Brahminism, which is now common to Hindustan. They admit of caste, will not allow the Vedas to be of Divine origin, do not, like the Brahmans, acknowledge any spiritual and eternal being from whom the universe derived its origin, but look on the material world with the human soul as self-existant and eternal, and have for their chief objects of worship, men, who, as saints, have raised themselves to the rank of divinities. Most of their theological opinions are similar to those of the Buddhaists and Sogatas, who do not admit of caste like the Jainas, but both worship, as subordinate deities, the Pantheon of the orthodox Hindus.

§ The cave temples of Buddhaist origin are by far more numerous on the N. W. of India than have been yet enumerated. In addition to the well known ones of Kanari, Elephanta, Karli, Ellora, and Ajainta, there are many more in the Dekhan and Konkan, such as those at Nasik, Junir, Aurungabad, Karrar, Mahar, &c.; in Malwa, and Rajputana, we find those of Bagh, and Gawalior; and I have heard of others in the Madras territories.

‖ A general appellation for the unclean tribes that are not within the pale of the Hindu religion; and who are usually styled degraded *Kshetryas.* This would seem to imply that they did not conform to the Brahminical rites when others of the same original stock did. The different divisions of them are to be found enumerated in Wilson's Sanscrit Dictionary. Some of those identified are the Odros, Urias, or people of Orissa; the Draviras, or people of Madura and Tanjore, on the Coromandel Coast, who are now orthodox Hindus.

Inasmuch, moreover, as the obscure subject of a nation's origin can admit of proof, when facts have been mistified through religious imposture, or the most recent annals perverted by fable, it may be reasonably contended for, that in the age of Herodotus, the Brahmans of India, the people of Persia, and those at the sources of the river Hydaspes, Sind, and Oxus, followed nearly the same faith, and were not dissimilar in manners.

It would appear that the religion they followed was the Sabean, or that which enjoining a respect for the host of heaven, as the noblest symbol of a deity, constituted the primitive idolatry of mankind.† It derived its name from the Sabeans, an ancient people of Arabia,‡ and was professed, in common with them, by the Persians, previous to the reformation of their religion by Zertusht, or Zoroaster, who introduced the worship of fire. The esoteric system of Sabeism was, apparently a pure theism, whilst its exoteric rites led to a stupid idolatry among the lower orders of the people.* In this respect it observed a distinction that prevails even in the *Vedas*, which have their *Karma Kanda*, and *Guyana Kanda*, a ritual and theology;† and would go far to establish an opinion, which has been entertained by many, that there is an identity in the astronomy and mythology of the ancient Arabs, Egyptians, and Hindus. Ferishta indeed tells us, that when Mohammed Kasim, the general of the Khalif Walid, invaded Sind, A. D. 711, the Hindu pilgrims resorted to Mekka and Egypt, for the purpose of paying adoration to the idols there, which they looked to with the utmost veneration;‡ and there is much to make us believe that such an intercourse existed prior to the mission of the Prophet Mohammed.

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* Some of the *Puranas* are of very little antiquity, as would appear from the text of the *Padma Purana*, which makes mention of *Ramanuja*, the celebrated Vishnava reformer, who flourished in the middle of the 12th century, and was cotemporary with *Vishnu Verddhana*, the fourth Belal Raja of Devarasamudra (see A. R. XVI. p. 28.) From what the *Bakhta Mala*, (A. R. XVI. p. 43,) asserts of the sectaries from Ramanuja, called Ramanandis, according to whose tenets the distinction of caste was inadmissible, we may safely infer that formerly a member of any tribe who assumed the garb of a mendicant, and devoted himself to penance, would have gained admission to the Hindu community. If we may credit the narration of Sadi, as given at the end of his Bustan, he was permitted, as a mendicant, to perform Hindu rites at the temple of Somnat. This happened in the 13th century; and though he calls the Brahmans Moghs, or fire-worshippers, it is scarcely possible that one, so generally well informed as is Sadi, could have done so in ignorance, or without having observed some connecting link of similarity.

† In reference to this subject I cannot forbear quoting an opinion of Mr. Prinsep, expressed in his Journal for September 1834, the justness of which appears supported by the evidence of inscriptions in Western India, and of the coins which the late Secretary of the Asiatic Society so ingeniously and successfully illustrated. "It is not surprising," says he, "that on the Indian side of the Persian monarch's dominions, in a part probably under his influence, if not directly under his sway, we should find the fire-altar, or the image of the sun, replaced by Krishna among the Hindus, or Buddha among the Buddhaists; both of them personating the sun in their respective mythologies."

Whatever forms of the Hindu religion were prevalent at the time, the adoption of the sun as the ostensible representation of Divine power, either in accordance with the commands of the ruling prince, or from a natural tendency towards an union of the Brahminical and Magian faith, could not present many difficulties. "We must not be surprised," says Sir William Jones, "at finding that the characters of all the Pagan deities, male and female, melt into each other, and at last into one or two; for it seems a well-founded opinion, that the whole crowd of gods and goddesses in ancient Rome and modern Varanes (Benares), mean only the powers of nature, and *principally those of the sun*, expressed in a variety of ways, and by a multitude of fanciful names."

‡ The origin of the name is not clearly ascertained, but has been traced by some etymologists to the Arabic word Sabaa, signifying a rising star. The word سابحات *subihat* in that language is also made to signify stars, planets, and angels; but I can assert nothing positive regarding the word Sabean.

The Persians had, at a very early period, adopted the worship of the sun, fire, and other elements;§ the Scythian Massagetæ appear to have professed a similar faith,‖ and Mr. Colebrooke has admitted, "that the earliest Indian sect, of which we have any distinct knowledge, is that of the followers of the practical Vedas, who worshipped the sun, fire, and other elements."¶

Such are the data for concluding that about five centuries before our æra the inhabitants of these countries were connected in religion, and could not have widely differed in their habits, when, as Herodotus tells us, the inhabitants of Casapatyrus,** or Kashmir, most resembled the Bactrians in their manners.

The Brahmans consider Kashmir as their original country, and traditionally relate they were led from thence into the plains of Hindustan by their leader Kasyapa,†† whose character is well known to the Brahminical and Buddhaist mythology.

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* See Sir Wm. Jones's discourse on the Arabs, A. R. ii. p. 9.

† Wilson on the Hindu Sects. A. R. xvi. p. ii.

‡ Brigg's Translation of Ferishta; vol. iv. p. 402.

§ Herodotus in Cho. p. 131, and Erskine on the Sacred Books of the Parsees. Bombay Transactions. vol. ii. p. 3061.

‖ Herodotus, p. 215.

¶ A. R. vol. ix. p. 273.

** It was so called among the Greeks, having been colonized by the followers of the sage Kasyapa, whose name in ordinary pronunciation, becomes Kashap, See A. R. vol. xv. p. 117.

†† He is the sixth terrestial Buddha among the Nepalese, and the predecessor of Gautama. The same enumeration of Buddhas as known in Nepal, is made by Mr. Colebrooke, in his account of the Jains. A. R. vol. ix. p. 303. Quarto.

His name continued to distinguish a numerous tribe of the former, previous to the comparatively modern divisions of five *Gaurs* and five *Dravers;* or the yet more recent distinctions that obtain among them in different provinces of India. This general idea of their northern origin, which prevails among the better informed of the Brahminical sect, would appear in all respects worthy of belief; since there is evidence of such an event to be found in the traces of people belonging to the Hindu stock, migrating to the south. These are manifest in the names of countries enumerated by Sanscrit geographical works, that were originally affixed to stations north and south of the Himala mountains, and became applicable, in the course of time, to places in the south of India. Such was evidently the course by which the northern countries of Madra and Pandiya* transferred their names to the provinces of Madura and Marwar, on the Coromandel Coast; and by which Virata,† a part of the kingdom of Trigerta, or Lahore, came to be considered one of the seven *Konkanas* situated in the south.

It is unnecessary to inquire whether they, who carried these names southward, were of the purely Brahminical or Buddhaist faith; for it may be truly asserted, that both religions in their origin were connected, and that the greater antiquity is in favour of the Brahmans, or the orthodox followers of the *Vedas*. Such would appear to be the import of the passage, quoted from the institutes of Menu by Sir William Jones, that, "Many families of the military class having gradually abandoned the "ordinances of the *Vedas*, and the company of the Brahmans, lived in a "state of degradation; as the people of Paudraca and Odra, those of "Dravira and Camboja, the Yavanas and Sacas, the Paradas and Pahlavas, "the Chinas, and some other nations." From this we learn, that a great revolution, both in religion and in government, was effected about this time; and that these nations conforming no longer to the Sabean idolatry, which had been common to the east, adopted an altered system of religious belief. This consisted, as would appear, in the worship of ***Mahat***, or intellect made manifest, as Gautama Buddha, with the introduction of an atheistical philosophy, which reasoning from material objects to the existence of spirit, confounded the shadow with the reality, and denied the existence of whatever was not cognizable by the senses. Some such difference in opinion brought about the Mahabarat, or great war in which the Pandus, with Krishna,* espoused the cause of the innovators, while *Dritarashtra* Raja and the Kurus held to the original faith. About this time, also, Viyasa collected and arranged the Vedas, which consisted originally of the prayers and hymns, or their *Sanhita*, that preceded, in Mr. Colebrooke's opinion, the *Bramhana*, or theological part.

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* The southern provinces of Madra or Madru and Pandiya are particularly mentioned in a grant of land (A. R. vol. ix. p. 428,) made during the time of ***Rokshamalla Raja***, by the minister ***Babakaja***, a descendant from Kasyapa. In the Hindu geographical work, called the ***Shapte Sambheda***, and quoted by Mr. Ward (vol. iv. p. 456,) they are placed more to the north, and were originally the same as the ***Pundda Regia*** of the ancients, now identified with Sogdiana, or the valley of ***Samarkand***. The date of the grant is Salivahana æra 1095, A. D. 1173.

† Some account of Virata, as one of the Konkans, will be found in Mr. Wilson's account of the Mackenzie Collection (p. xcix,) and in Grant Duff's enumeration of the same, (Hist. of the Marahtas, vol. i. p. 4); it appears under the corrupted name of Marwar, extending from Bancote to Bassein, inclusive of Bombay. The Marahta traditions relate that *Virat Rai*, who was the Rajah of Wai, near Satara, accompanied the Pandus to the battle of Kuruket; which though doubtful as a fact, evinces that he received his title from the country of Virata, a political division of India, that was originally more to the north than Wai.

The division of the people into four castes followed, if it was not cotemporary with these innovations, and was effected about the period of the Macedonian conquest, if as we may infer from the respectful mention of the Yavana, or Greek power, in the Mahabharat, the composition of this poem dates posterior to the Macedonian conquest of India.† Some hold an opinion that the institution of caste, with its extravagant pretensions to antiquity, had been matured in Hindustan Proper long prior to the time of Alexander's historians. Those entertaining this belief have pretended to discover that the enumeration of classes made by Arrian is the exact counterpart of divisions now acknowledged by the Hindus. The probability of this cannot be granted without great latitude, and the seven classes of employment into which the Hindus were then distributed, as detailed by that writer, cannot be admitted to be identical with the now existing divisions of this people, into *Brahmans, Kshetriyas, Vaisiyas*, and *Shudras*. The former would have been found among the Egyptians, and were as characteristic of them as of the Hindus; whilst the other arrangement was effected, in all probability, about the time when the Sanscrit writers composed the earliest poetical works of the latter. If the Mahabharat, or poem of the great war, was composed soon after the Greek conquest, the reformation of orthodox Brahmanism would be placed not long before the Christian æra.‡ The Mahabharat may be then admitted to contain historical materials of some value; and accounts of recent events, greatly exaggerated by allegorical references to ages long past, and to mysteries in religion, that were little remembered, or imperfectly understood. Such is, I think, the correct supposition, and from thence we may trace, as among other nations, the origin of fable, and the genealogy of their gods.

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* Krishna's existence, as a real historical personage among the Hindus, is more than doubtful. He every where appears as the hero of fable, and whatever is believed regarding him, belongs to one whom the Hindus had heard of rather than known as a leader among themselves.

† See note v. on the history of Kashmir, A. R. vol. xv. p. 102.

‡ The Arab historian and geographer, Al-Masudi, who wrote A. D. 949, tells us that schism in the Hindu religion happened during the reign of Korish; and if his chronology for this event can be trusted, the origin of the Indian sectaries will be fixed at the commencement of our æra. Three hundred and twenty years elapsed, it is said, from the death of Phur (the Porus of Alexander's historians) to that of Korish; and if this be correct, the quarrel between the Buddhas and Brahmans happened B. C. 7.

The Brahmans did not long follow the astronomical religion of the *Vedas* without speculating on the divine nature, and that of celestial spirits. They personified the elements and the planets as the types of that unapproachable God whom they worshipped; and as Mr. Colebrooke says, "peopled heaven and the world below with various orders of beings." Their wonder at contemplating the infinite glory of the heavens, made them vent their sentiments in allegory. Their allegories, leading them astray from the great First Cause, gave rise to varied existences of the divinity, and these yet farther distracting their attention from the unity of God's nature, led to a system of meditation and mysticism, in regard to spirit, of which the promised benefit was to obtain liberation from this life, and union with the great Eternal Cause. This, which was common to the East, existed alike among the ancient Arabs and the Hindus; and though some are inclined to believe that the Sufyism of the Mohammedans derived its origin from the Yoga, or abstraction of the latter, yet we may trace it to a more remote system of *Deism*, the Kaballa of the Jews.*

A few extracts from the Sanscrit authorities, will shew us that this view of a very obscure subject is strictly deducible from the order of opinions as there made apparent. The prayer of the Veda, called *Gayatri*, concludes with these words—"Let us meditate on the Divine Ruler, (Savitri;) may it guide our intellects. Desirous of food, we solicit the gift of the splendid sun, (Savitri) who should be studiously worshipped. Venerable men, guided by the understanding, salute the divine sun, (Savitri) with oblations and praise."† This bears evident traces of Sabeism; which are yet more distinctly marked in the hymn from the Sama Veda; where Brahma is characterized as the light of the moon, of the sun, of the fire, of the lightning, and all that shines.*

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* According to Selden, the Kaballa of the Jews was a belief in the doctrines of the traditional law, held in almost equal reverence with the written one. It treated of divine things, of the more abstruse parts of their faith, of angels, and various symbols. The appellation Kabala, קבלה. in Hebrew, bears nearly the same interpretation as Kiblah قبا in Arabic, signifying any thing that is before one, or the altar; and the Jews, by meditating on this, promised themselves a superior knowledge of celestial existences. The doctrines of this worship, combined with natural magic, became the foundation of what is believed by the Sufis, or followers of the truth. The authors of the middle ages, and the modern Greeks, who enumerate the different tribes situated west of the Indus, speak of those called *Hakak*, or those adoring the truth. These were free, and worshipped the sun and stars, as did the ancient Arabs. See dissertation on the travels of two Mohammedans. p. 176.

† Ward on the Hindus, vol. iv. p. 93.

It may be well doubted if such a thing as Sabeism ever existed, without being mingled with that species of idolatry called *Pantheism;* and which teaches that the divine nature, penetrating every thing, makes itself known by its operations. Such, indeed, is the Sabeism of the Vedas; where the Supreme Being, in his works of creation, preservation, and destruction, is celebrated under the names of *Brahma*, *Vishnu*, and *Shiva.*

The founders of this system, reasoning on the nature of the deity, and the world's physical energies, disseminated their hypothesis on the origin of the universe; and thus founded the six philosophical schools, or Darshanas of the Hindus, that were, certainly in existence prior to the composition of the *Mahabharat* Their names are the *Voishesika*, the *Niyaya*, the *Mimansa*, the *Sānkhya*, the *Patangala*, and the *Vedanta*. This last, which is the school of Viyasa, who compiled the Vedas, is generally considered to be the most recent in its origin; but was, I think, the first in natural order and in practice; being a commentary on the theology of these books, written to support their somewhat ambiguous theism against the attacks of the Sankhya School, which had advocated Materialism. Its doctrines, which incline to pure Idealism, maintain that spirit is all in all, made manifest through its union with allusion, or gross matter; and by supposing that the Supreme Being is disguised in many forms, divine, human and animal, they introduce what has been called Theomorphism. This blended with Sabeism and Pantheism forms the systematic Polytheism of the Brahmans.

The Sankhya, which appears connected with the religion of the younger Buddha, or Gautama, is atheistical, and inculcates Materialism. It declares that *Mahat* is the principle which is named the reasoning faculty, and springs from matter; and that its synonyms are Vishnu, the all-pervading; and Buddhi, the understanding. It is hostile to the *Veda* and the *Smritis*, or law books; asserting, " that he, who in the body has obtained emancipation, is of no caste, of no sect, of no order, attends to no duties, adheres to no Shasters, to no formulas, and to no works of merit."†

Opinions such as these were adopted by the followers of Buddha; who, soon became so numerous and powerful as to be more than a match for those who adhered to the ancient religion. The two hostile sects of Buddha and Brahma were evidently cognate, and of contemporary origin:

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* Ward on the Hindus, vol. iv. p. 82

† See Ward's Translation of the Sankhya Sara, vol. iv.

though the latter, as adherents of the Vedas, and the Sabean idolatry, truly lay claim to superior antiquity.

Sabeism was, as we have endeavoured to shew, the original religion of the people east and west of the river Indus; and was followed by a modification of its original tenets, now known as the faiths of Buddha and Brahma. The people who believed the last, occupied the banks of the Ganges and Hindustan Proper; those who professed the other, were on either bank of the Indus, and in the south of India. The two rival sects appear to have existed in amity with each other, until the Brahmans, having introduced caste, and endeavoured to exalt themselves above their opponents, brought on the Mahabarat, or great war, that happened posterior to the time of Alexander the Great's expedition to India. In modifying the Sabeism of the Vedas, they introduced the monstrous fables of the *Puranas*, with the deification of abstract properties, under the name of gods. In doing this they addressed the ignorant spirit of the people, whose seers and astrologers they were; and, having artfully incorporated the opinions of existing sects with their own, claimed for their religion unchanging uniformity, though this faith, made up of all systems, is so heterogeneous, as to be incapable of an analysis that would resolve it into its separate sources.

The origin of the Buddhaist system can be traced back five centuries before the Christian æra, but its followers were for long after limited in number and power. Though there be nothing but conjecture, on which we may found an opinion, whether Balkh and Benian, or the districts eastward of the Indus were the countries of its nativity, we possess internal evidence, in the religions of Zertusht and Buddha, that they were for some time connected, and the affinity existing between the Zend and Sanscrit languages, would further warrant us to conclude, with Sir William Jones,* "that a powerful monarchy was established in Persia, and that it was, in truth, a Hindu monarchy," when Sabeism was the religion of both countries. This monarchy, or the Mahabadian empire of Persia, is celebrated among the Buddhaists of Ceylon, as we learn from the report of the Colombo Bible Society, for 1816; and the fact of the same being known in the tradition of the Buddhas, evinces that these seceders from Sabeism, who spread themselves over the south of India, existed in intimate connection with the followers of Zertusht. The coins and relics lately discovered in the sepulchral monuments, that exist in the Punjab and the vicinity of Cabul, bear evidence to the correctness of this opinion; and the narratives of the Arab historians lead us to infer, that the fire-temple, in

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* See his Discourse on the Persians, A. R. vol. ii.

India, dedicated to *Helios*, or the sun, and which was permitted to escape destruction, on three times the value of its precious things having been given to the Mohamedan conqueror Hijaj-bin Yusuf, was no other than the Buddhaist temple of Multan, called "the happy house of gold."

Hij 23. A. D. 644. The communication, between India and Persia, which had existed from the earliest times, was not interrupted till the twenty-third year of the Hijira when the followers of Mohammed, having subdued the province of Khorasan, and countries west of the Indus, became masters of the pastoral tribes in that quarter.* The intercourse of the Hindus with the aborigines on the north of India, was not finally A. D. 676 closed until thirty years after, when the Tartars of the north-west were forced to submit their necks to the yoke of Islam. The subsequent wars and aggressions of the Mohammedans, to the north-east, drove these nomades to the south, some of whom having conformed to the institution of caste, and other gods of the Brahminical Panthæon, gave rise to a modification of their then Buddhaist tenets, which is now known under the name of the Jaina religion. This had its origin, as would appear, when the rival sects of Buddha and Siva were striving for superiority in Hindustan; and arose from a union of the two systems endeavouring to reconcile the more objectionable parts of the Buddhaist faith to the received opinions of the orthodox Hindus. Brahmans, however, formed part of both religions, and the inhabitants of the island of Bali distinguished them, in the twelfth century, as the sects of Buddha and Siva.† The great influx A. D. 1166. towards the *Dekhan* and country south of the *Narbada* of those professing the latter faith, about this time, will account for the migration of the Buddhaists, or the Jaina sectaries of this faith, into the islands of the Indian ocean.

A Brahmanical invasion, from the north, is traditionally ascribed to a prince named Mayura Verma;‡ who was the founder of the Kadumba, or Karamma race of Rajputs. By the most consistent account he is placed in the ninth century; but flourished, probably somewhat later. The greatest influx of Rajputs to the Dekhan happened, however, from the beginning of the tenth to the end of the twelfth century, caused by the conquest of Mahmud of Guzna, and his successors.

The Jainas assert, that "in the time of Bijjala Raya, who ruled with renown in the city of Kalayana,§ the Dakshen of Hindustan was conquered by the Sadapramans,"* or followers of the Vedas; and this tradition is attested by the sculpture in the caves of Ellora, where the union of the Buddhaist and Brahminical faiths declares them to be the works of the Jainas, or some similar sect, labouring to accommodate a belief and reliance on mortals of transcendent virtue to the worship of the gods that are chiefly esteemed in the Hindu Pantheon. The Brahmans who have visited the caves of Ellora and Ajunta, deny the possibility that any part of the sculptures could have been executed by the orthodox sect.†

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* Price's Mahomedan Annals, vol. i p. 138.

† Crawford on the people of Bali; A. R. vol. xiv.

‡ See Mayura Verma Cheritra in the Catalogue of the McKenzie collection vol. ii. p. 95.

§ It is generally called Kalyan, or Kayani; and lies about fifty miles north of Kulberga, in the Dekhan.

These Buddhaist sectaries on having changed their original faith, were designated by the name of Rajputs; and executed the magnificent temples of Abu, and other such stupendous works, on the banks of the Indus. They have preserved no record of their origin excepting traditions; which their bard Chandra embodied in his work, the *Prithvi Raya Riyasa.* Prithvi Raya, or Pithora, who is the hero of the tale, became, from his connexion with the first Mohammedan conquerors, the subject of real history; and the poem, which celebrates his exploit, can claim no higher antiquity than A. D. 1192; when this Lord Protector of the feudal barons of India, as mentioned in my introduction to the *Mirat Ahmedi,* fell at the battle of Tanessar.

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* See account of the Jainas, A. R. ix. p. 247.

† Mr. Erskine's lucid observations on the Caves of the Dekhan, have shed much light on a very obscure subject, but I cannot agree with the learned gentleman in thinking that any of them were ever executed by Brahmans, except in connexion with the followers of Buddha, whose guides they were in introducing Jaina innovations.

NOTE.—The paper now communicated, was read at a meeting of the Bombay Branch of the Royal Asiatic Society, so early as December 1835, but withdrawn, before the brilliant discoveries of the late Mr. Prinsep had given currency to facts, that bear out generally the truth of opinions here maintained. The explanation of the several series of coins found in the north-west of India, the interpretation of the Lath and Cave Inscriptions, and the translation of the Mahawanso by Mr. Turnour, with other collateral coincidence, have strengthened the writer's conviction of the justness of opinions then formed. They have been kept unpublished, as some orientalists, whose acquirements the writer respects were opposed to them; though these had only been accustomed to view the Hindu social state through the glass of Brahmanical representation, and distorted Sanscrit evidence. The president, however, in thanking Dr. Bird for his paper, which had been listened to with much interest, observed, "that while he was prepared to dispute some of its important positions, it was but fair that it should be laid before the learned world, for candid criticism, in the state in which it had been communicated to the Society."

Proceedings of the Asiatic Society.

(Wednesday Evening, 4th November, 1840)

Col. J. A. Hodgson in the Chair.

Library and Museum

The following books, &c. were presented :—

Lardner's Cabinet Cyclopædia—Treatise on Malacology,	1
Philosophical Magazine and Journal of Science, 3rd Series, Vol. 16th, No. 101, and 105, February and June, 1840.	2
Proceedings of the Geological Society of London, Vol. 3rd, No. 67, 1840.	1
Oriental Christian Spectator, 2nd Series, Vol. 1st, No. 9, September 1840,	1
List of Works relating to India, published by W. H. Allen and Co.	1
History of British Birds, by W. Yarrel, London, Parts 14 and 15, September and November, 1840.	2
Chinese Repository, Vol. 8th, No. 9, January, 1840,	1
Asiatic Journal and Monthly Register for British and Foreign India, China, and Australasia, February, 1840, Vol. 31st, No. 122. New Series, 8vo.	1
Transactions of the Society for the Encouragement of Arts, &c. 1839, Vol. 52nd, Pt 2nd, 8vo.	1
Journal of the Royal Asiatic Society of Great Britain and Ireland, London, 1840, No. 11, 8vo.	1
Annals of Natural History, or Magazine of Zoology, Botany, and Geology, by Jardine and Selby, London, July, 1840, No. 32, 8vo.	1
Annales des Sciences Naturelles, Zoologie, et pour Botanique, par Audowine et Edwards; Tome 12th, Paris, Août 1839, 2nd Series,	2
Column at Corygaum, to the memory of Captain Staunton, 1821,	1
Sketch to ditto, Madras 1818,	1

The Officiating Secretary submitted to the inspection of the meeting, an old Chinese Coin presented by W. E. Stirling, Esq. with the following memorandum—

"This is an old Chinese Coin. It was stated to have been coined before the Tartar Dynasty occupied China. It is presented through me by Captain Alcock, who obtained it at Macao. The twelve animals which surround the inner circle and inscription, probably represent the signs of the Zodiac, but not in such distinct characters as to be free from doubt. The Chinese characters of the inner inscription can probably be read by those versed in that language. The obverse side represents two Dragons. I am sorry I cannot offer any particular observations, but trust that this coin will be esteemed a rarity of no small interest."

Read a letter from Lieut. A. Cunningham, from which the following is an extract—

"I have had a long letter from Lady Sale, and she promises me impressions of all curious coins that she may meet with. Sir Robert had been opening a Tope, but was disturbed by DOST MAHOMED. Poor EDWARD CONOLLY too, had commenced work upon the great Khybar Tope, which is said to be the most magnificent in India, by those who never went two miles out of their road to see the great Benares Tope, which is 110 feet high.

"If I was at Patna, I would have the topes across the Ganges opened in two months. I can hear of nothing near this place. I hope however to be able to pay a visit to Faizabad, near which I hear, that there is a pillar.

"I have a short inscription of the time of GOVINDA CHUNDRA DEVA, of Kanouj, the predecessor of VIJAYA CHUNDRA DEVA, the prince mentioned in the long inscription of which Colonel CAULFIELD has sent you a copy. My short inscription mentions, GASALA DEBEE as the wife of GOVINDA CHUNDRA."

Read a further letter from the same officer, with reference to which the Officiating Secretary earnestly begged, that notice might be taken by any member of the Society, or indeed any individual whose position and inclinations might enable him to serve the cause of Antiquarian research in Behar, alluded to in the latter portion of the letter, which was then read as follows—

"I am now lithographing a large drawing of a beautiful silver patera of a Sassanian king on horseback, killing a lion—2nd Shahpore? It has an inscription which I am to get shortly.

"I have heard of no new genuine coins, but the forged coins are becoming plentiful, and I think I have discovered the forger. The fellow has not much character to lose, but, I think an exposure will put others on their guard against purchasing coins from him.

"The country north of Patna is full of topes, none of which have been opened.—

"1. The Kesariah mound, 20 miles N. of Bokhra, in sight of the Gunduk.

"2. A mound of solid brickwork, about 40 feet high, near Bassar.

"3. At Bokhra (*not* the Azimgurh Bokhra) 13 kos north of Patna, and 6 kos north of Singhea—*a pillar and tope* of solid brickwork; a *horizontal* excavation was made by a doctor of Mozufferpore 35 years ago, (therefore the first excavator of a tope), but nothing was found.

"Could you not manage to have an excavation made from the top to the foundation, in a perpendicular direction? Some one at Patna, or Mozufferpore, might superintend the work. The pillar also should have an inscription, which is probably under ground."

The Officiating Secretary submitted to the Meeting the reply from Major RAWLINSON of Candahar, to a communication which he had addressed to that able Antiquarian, in which he had begged him to undertake the duties of Corresponding Secretary in Affghanistan. The Society, the Officiating Secretary observed, would not fail to regret exceedingly the difficulties which interfere with Major RAWLINSON's accepting this office, and which he had requested him to undertake in common with the late Capt. CONOLLY, who working in a different part of the country, might have devoted his energetic endeavours to the furtherance of some of the main objects of the Society.

"It was with extreme gratification that I received your letter of September 9th, a few days ago, enclosing the official notice of my admission into the Asiatic Society, and conveying to me the very flattering offer of acting as Corresponding Secretary to your institution across the Indus; fond as I am of the study of antiquities, there could hardly be a greater *pleasure* to me, than filling the situation you propose, which would place me in communication with all the most skilful antiquaries and numismatologists of India, but really and truly, I have not the time to bestow on the duties of so fascinating an employment; being now in a laborious and responsible Political situation, I feel it incumbent on me to sacrifice, to a due fulfilment of my public duties, those pursuits which for many years past have formed my chief study and delight, and which when I am once fairly engaged on them, possess for me all the attraction that attaches the opium-eater to his drug. I have now brought myself to eschew antiquities upon principle, leaving unfinished several papers for which I am pledged to Societies in London, Paris, and Vienna, and it would be perfect ruin to me to be subjected afresh to the temptations which the office of your Corresponding Secretary would necessarily throw in my way. EDWARD CONNOLY would have been a most zealous and efficient coadjutor, and would probably have had it in his power to command the requisite leisure, but, alas! you will have heard long since of his untimely fate, and I doubt if there is any one in the country qualified to supply his place.

"I should like, if I found during the winter that public business was not very pressing, to give you a series of letters to be published monthly in your Journal, tracing the outlines of such Historical and Geographical information as we possess regarding Affghanistan from the earliest ages to the present day, and inviting inquiry on all matters of interest referring to the different epochs, but I could promise nothing more than outlines, for I certainly have not the information (and I almost doubt its being procurable) to fill up details, or attempt any thing like analysis; something of the sort however certainly requires to be done; hitherto the numismatical discoveries have hardly been turned to any account; we have a long list of names, but there has been no attempt to appropriate them to the different tribes and dynasties of which, chiefly through the Chinese authorities, we can darkly trace the succession in the regions between the Oxus and the Indus, still less has there been any endeavour to affiliate these tribes, or to work out their descent into the page of modern history.

"I beg to return you my best thanks for the impression of Pottinger's cylinder, it is a relic at least as ancient as the times of Cyrus and Darius, and must have travelled from the banks of the Euphrates to the spot where it was found in the Paropamisan mountains. The inscription is in the Hieartic Babylonian character, and is in fact the usual formula (probably a prayer) found upon all these sacred cylinders. This character, which is the third or complicated class of cuneiform writing, is crept in a few signs conjecturally rendered by Burnouf, altogether undecypherable. It is probably syllabic, and certainly embodies a semitic language. The means of rendering it intelligible are, however, I believe, in existence, and if I ever return to Persia, and can devote a year or two to the task, I do not despair of mastering it by the assistance of the Zend literal cuneiform characters, which I perfectly understand, and which is employed in the inscriptions, to render the translations from the Babylonian into the ancient Persian. The character being once decyphered, the language to which it is appropriated will no doubt be found cognate with the Phænician, and I assert with confidence, that the knowledge thus obtained will open to us (always following the Mosaical early history of the world) an insight into the common original language of mankind, as thousands of bricks stamped with this writing are found in the foundations of the tower of Babel, and must have been placed there before the confusion of tongues, when the language spoken in the plain of Shinar, was, I suppose it will be admitted, the same that Adam and Eve used in Paradise, and this I believe is about the ultimate limit that antiquarianism reaches; joking apart, however, there is no doubt but the reading of this character will give us a decent knowledge of the history of Assyria and Babylonia from Nimus to Sadanapalus and Nebuchadnezar; the records are most ample.

"The inscription on Hutton's antique, gives the title of the king as Palash (the Volagases of the Greeks) and from the style of the Pehleivee writing, probably refers to the Sassanian monarch of that name; but I have not yet satisfied myself as to the exact meaning of the entire legend. I have a vast number of impressions of Sassanian gems with legends, and will endeavour some day to give you a paper on them: but the subject is very obscure, and requires a still greater field of collation, than I have hitherto succeeded in accumulating.

"Coins are scarce in this part of the country, and the nomenclature of Bactrian and Melo-Scythian numismatology is, I fancy, pretty well exhausted, but all the useful part of the science requires, as I have already observed, still to be elaborated."

The Officiating Secretary submitted a note of charges for the printing of Part 2d, Vol. II of the Researches of the Society, and again suggested that a volume of Transactions might be prepared in octavo, should the Committee of Papers determine that the materials, which the Officiating Secretary was prepared to submit to them, were of a nature to admit of publication; the octavo form was, the Officiating Secretary observed, of advantage, not only as regarded the saving of expence, but also for facility of carriage, which was a matter of some importance for a Society which communicated with corresponding members at so great a distance as did the Asiatic Society of Bengal.

(Suggestion referred to the Committee of Papers.)

Read a letter from Capt. T. S. Burt, of which the following is a copy—

"Since my letter to you of the 19th October, I have been over to Chitore, and taken facsimiles of the inscriptions I met with there; their age is *about* 750 years, as well as I can make out; Tod speaks of those on the lofty pillar, but not of two others, which I found in an old temple there: I shall defer sending them to Calcutta for the present.

"I have found some *images* of marble at Ajmere, 650 years of age, with inscriptions on their pedestals.

" I am now about to proceed to mount *Aboo*, celebrated by Tod, and I hope to find some Pali writing, as well as other characters there.

" My principal object in writing to you now, is this—my brother of the 64th states, that when looking for my *lost* drawings either in the Society's apartments or in the Mint, he found a number of facsimiles of old inscriptions bearing my signature, which were thrown aside in consequence of JAMES PRINSEP's illness; now as many of them, a few in *particular*, were very valuable, and of considerable age, as the pillars upon which I found them testify, I think it right to bring the circumstance to your notice, with a hope that you will not allow them to lie any longer as they now do, 'unnoticed and unknown.' "

The query put by Capt. BURT, regarding the fate of his inscriptions, was directed to be referred to the executors of the late Secretary, Mr. JAMES PRINSEP.

Read a report from the Officiating Curator to the Society's Museum, together with the following observations recorded by the Officiating Secretary, in submitting that Report to the Committee of Papers.

" I have the honor to submit to the Committee of Papers, the accompanying report by our present Officiating Curator. The zeal with which Mr. PIDDINGTON is entering on his task of arresting the progress of decay, will I trust be as grateful to the Committee, who were the cause of his temporary appointment, as his labours are certain of being useful to the Society."

" To H TORRENS, ESQ.
" *Officiating Secretary of the Asiatic Society.*

" DEAR SIR,

" Having in pursuance of your letter of 27th December last assumed charge of the Museum of the Asiatic Society, as Officiating Curator, on 1st instant, I have now, in obedience to the resolutions of the Committee of Papers referred to in it, to submit my Monthly Report.

" *Palæontological, Geological, and Mineralogical Department.*—The first impression which a cursory inspection of these departments of the Museum has given me, is a strong one of the sad dilapidation going on amongst them; partly in consequence of trusting to the very perishable recording, which ink, paper and paste admit of in a climate like this, and partly from the almost entire absence of any general or serial catalogues to the various collections; many of which, again, have evidently been broken into, for the purpose I presume of completing other arrangements? but of no such arrangements, whether completed or left incomplete, has it seems any note or register unfortunately been left in the Museum. I have written to my predecessors on this subject, to ascertain if any records of any kind exist, and I yet trust we shall be able to rescue something to guide us in the sad confusion which now prevails.

" I may briefly state a few facts in confirmation of what is here said. In our rich Palæontological collection, no registers or catalogues, beyond the few lists printed in the Journal exist, that I can yet discover; and valuable specimens are fast losing their labels of names, and above all, of localities. In our Geological series I find, amongst others, even those of Gerard, Voysey, and Franklin—the first particularly of unique specimens, collected often at the risk of his life at 16 and 18,000 feet of elevation, midst the snows of the Himalaya, on the frontiers of Chinese Tartary—all going to utter confusion, through the growing indistinctness of the ink, and the ravages of damp and insects. Of the valuable collection of the Lavas of Vesuvius, presented by Sir Edward Ryan, though of this the Catalogue exists, yet only thirty-six out of nearly a hundred specimens can yet be found; I omit for brevity's sake, further details of this nature.

"I have then thought it of urgency to confine myself almost wholly to arrest this dilapidation, and if possible, so to place every thing upon record as it now exists, or can be ascertained, that at all events farther mischief in this way may be stopped, and the records rendered as enduring as paint and printing can make them. The Museum book of "Geological collections," sent herewith, will shew what I propose doing for every series; and I have arranged in Case No. 8, Frame No. 1 (to the right hand below the stair-case) Dr. Gerard's series, in such order, with its separate little book of reference in the case, that it is available for the study of visitors and members, and when the serial catalogue is printed, it will be beyond the reach of any thing but wilful confusion for a long period of years * I shall be happy to have the opinion of the Committee on this plan of arrangement, and these views. My own feeling and judgment on this point is, that nothing could be more lamentable, and more discouraging to the progress of Indian Science, than the fact that collections, which men have almost literally laid down their lives to obtain, should thus be lost to their memory, and to the ends of Science

"*Osteological Department.*—In this division the want of cases for preserving the smaller skeletons from the effects of dust and dirt is much felt; and I beg to submit this matter particularly to the attention of the Committee; for several of our skeletons are rare and valuable, and even a common one costs time and expence to replace, or repair it. The small skeletons are particularly liable to dilapidation when dusting, and from the incautious handling of visitors.

"*Mammalogical Department.*—In this again we are entirely without glass-cases, and in spite of daily care, much dilapidation must be going on, which is but too evident in many of the specimens.

"*Ornithological Department.*—This and the following department are by far the best preserved of our collections, being fully provided with cases.

"*Reptiles, Fishes, &c.*—Provided with cases, and generally in excellent preservation. Mostly named, but no catalogues. The spirits of wine having partly evaporated from many of the jars and bottles, it has been necessary to fill them up, which occasions some extra expence. I am in hopes of at least diminishing this evil in future, by the precaution of cementing over the stoppers, which, with their current duties, and the preparation of the additions to the Museum, mentioned hereafter, has been the standing employment of the Curator's Assistants.

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* Five series in all, are arranged, comprising 293 specimens, but only one is placed in a case for inspection.

" Additions to the Museum this month have been—

" 1. A valuable series of Geological specimens from Brimhan Ghaut, on the Nerbudda, to Omarkuntuck, the source of that river, by Dr. SPILSBURY—*Arranged and Catalogued.*

" 2. The splendid skeleton and skin of the Gaur, from Chota Nagpore, by Major OUSELEY—*Skeleton mounted, skin suspended, being imperfect.*

" 3. Skeleton of the Eagle formerly in the Society's compound—*Mounted.*

" 4 A fine specimen of the Hematronus undulatus—*From C. P. White, Esq. Midnapore, stuffed Duplicate of one in the Museum.*

" 5. A pair of the young of the *Cheel*, Falco *ater—Stuffed.*

" 6. A fine specimen of the *Machal*, Falco ——— ? (Purchased, not previously in our collection)—*Stuffed.*

ASIATIC SOCIETY'S MUSEUM,
30th November, 1840.

I am, Sir,
Your's obediently,
H. PIDDINGTON

The Officiating Curator submitted his report on the Mineral specimens sent from Rajpootana by Capt. BURT, under the supposition that they were of the nature of Coal. Mr. PIDDINGTON observed, that it has no relationship to the Coal whatsoever, for it is infusible at a heat which blisters platina. It is one of the Titaniferous Oxigen of iron. He likewise submitted the following list of specimens as desiderata for the Osteological branch of the Museum :—

" *Skeletons.*

Neel Ghye.
Samur, 4 horned Deer of Sumbhalpoor (Kotarn ?)

Buffalo.
Gayal.

Garial.
Alligator (large.)

Lion
Leopard.
Lynx.

Hyæna.
Jyo, or wild Dog of Bundlecund.
Do. or do. do. of Nepal.
Do. or do. do. of Affghanistan.

Pangolins.
Tapirs of Tenasserim Province.
Dugong of Singapore.

For the presentations and contributions the thanks of the Society were accorded.

JOURNAL

OF THE

ASIATIC SOCIETY.

Description of, and deductions from a consideration of, some new Bactrian coins. By Lieut. ALEXANDER CUNNINGHAM, *Engineers.*

There are but few notices of Bactrian history to be found in ancient authors; and some even, of those few, do not agree: so that we are compelled, in the absence of historical aid, to examine the numismatology of Bactria, as Butler's philosophers examined the moon, by its own light. And thus a good cabinet of the coins of the Bactrian princes, is to an experienced numismatist

> "——— A famous history .... enroll'd,
> In everlasting monuments of brass—"

from which he may draw the data for a chronological arrangement of those princes, many of whom are "of dynasties unknown to history." In this paper, however, I shall confine myself to a notice of the pieces figured in the accompanying plate, merely adding such inferences as a careful examination of the coins has suggested to me.

No. 1. A round copper coin of large size, and of brittle metal, of middling execution, and in fair preservation.

Obverse. Figure of Apollo standing half turned to the right, with the chlamys falling behind, and a quiver at his shoulder; holding in his left hand an arrow pointed downwards, his right hand resting on the arrow. Legend in three lines ΒΑΣΙΛΕΩΣ ΣΩΤΗΡΟΣ ΑΠΟΛΛΟΔΟΤΟΥ; "(coin) of the saviour king Apollodotus."

Reverse. A tripod;—legend in Bactrian Pali 𐨨𐨱𐨪𐨗𐨯 𐨟𐨿𐨪𐨡𐨟𐨯 𐨀𐨤𐨫𐨡𐨟𐨯, *Maharajasa trádatasa Apáladatasa;* "(coin) of the great king Apollodotus, the saviour." I have ventured to render the Bactrian Pali equivalent of Soteros, in a new way, which appears to me to give the exact meaning of the Greek word. It will be seen that at the foot of the initial letter, there is a stroke backwards, which, from its occurrence in the name of Eucratidas, and in the word *putrasa*, for the Sanskrit पुत्रस्य, must be the letter R in composition, thus making the word *trâ-datasa*, or "of the giver of *trân* (S. त्राण) safety," i. e. "the saviour." In the field are two Bactrian Pali characters, which I read as *i* and *t*; the former of these is found only on this coin, and on No. 2 of Colonel Stacy's new coins (see J. A. S. of Bengal for April, 1839, p. 344,) which I will hereafter show to belong to the family of Undopherras.

This piece is of the same type as the well known round coins of Apollodotus; but it differs from them in being of inferior execution, in having its legend disposed in three straight lines, instead of around the piece, and in its monogramatic characters, the principal of which, by its after occurrence on an undoubted Parthian coin of the family of Undopherras, leads me to assign the mintage of this piece to some place in Ariana, south of Bactria Proper and of the Indian Caucasus, and to extend the rule of Apollodotus from the Paropamisus to Patalene, and perhaps even to Barugaza, where we know that his drachmas were current more than two hundred years afterwards.

Various places have been assigned to Apollodotus in the list of Bactrian princes, none of which have received any general assent; and as the only passages in which he is mentioned by ancient authors, give no clue for fixing his proper rank amongst the kings of Bactria, we must be content to see our way by the light glimmering

> "On narrow coins through dim cerulean rust,"

which has led me to the conclusion, that Apollodotus was the son of Eucratidas the great king; this opinion, which I offer with much diffidence, is founded upon the following facts :—

First.—The common round drachmas of Apollodotus bear the title of Philopater, which title M. Jacquet conjectured would declare his father to have been of royal origin, for had he been in a private station, his son would not have paid him so striking an honor. M. Raoul-Rochette says, that this conjecture appears very plausible, and he adds, "but there is something more to be remarked here, which is, that on the coins of the kings of this part of the East, especially on those of the Arsacidæ, *the epithet of Philopater indicates the association of a son in the royal title of the father.*" From this M. Raoul-Rochette supposes that Apollodotus was the son of Menander, and that he was associated in the government with his father, and consequently took the title of Philopater in addition to the epithet of saviour, which was common to both princes. The opinion of so eminent an antiquary as M. R. Rochette, must always command respect, even when it fails to produce conviction; and did not the facts which have led me to a different conclusion seem particularly strong and clear, I should certainly hesitate in dissenting from one, in every way so well qualified to judge. Now it appears from the quotation given above, that the epithet of Philopater indicates the association of a son in the royal title of his father; and we know from Justin (lib. 41, c. 6,) that Eucratidas had made his son "a partner in his kingdom;" from which it results almost conclusively, that Apollodotus, who was the only prince that bore the title of Philopater, must have been the son of Eucratidas, the only king who is recorded to have associated his son in the Bactrian kingdom with himself.

Second.—The rarity of the coins bearing the title of Philopater in comparison with the other coins of Apollodotus, would seem to prove that these pieces were all struck during his association in the government with his father, on their return from the Indian conquests: and that after having murdered Eucratidas, he dropped the title of "lover of his father," which to have continued would have been ridiculous, as well as an outrage upon humanity. Now we know that this unnatural son gloried in the murder, and, "as if he had slain an enemy, and not his father, he both drove his chariot through his blood, and ordered his body to be thrown out unburied;" which circumstance most satisfactorily accounts for the comparative scarcity of the coins of Apollodotus, which bear the title of Philopater; for had the murderer wished to have concealed his crime, he would certainly not have dropped the title of lover of his father, but would rather have published it on all his coins, as a presumptive proof of his innocence; we also know that the coins bearing this title are found mostly in the Punjab, and some even in India, while none were found by Mr. Masson in the classic site of Beghram; which facts serve still more strongly to establish my opinion, that these coins of Apollodotus Philopater were struck during his association in the government with his father Eucratidas, on their return from the Indian expedition. Now the square drachmas of this prince, which has the elephant and the Indian humped bull, are common at Beghram and in the valley of the Kabul river, as well as in the Punjab ; and thus they would seem to have been struck by this parricidal prince after the murder of his father, in commemoration of the Indian victory.

Third.—The partiality of Eucratidas for "the god of Love and Poesie and Light" is proved by the frequent occurrence of the figure of Apollo as the reverse of his tetradrachms, and by the laurelled head of Apollo found on the round copper coin of this prince, belonging to the Austrian cabinet; and nothing could be more natural in one, whose favourite and patron deity was the glorious sun, than to call his child *Apollo-dotus,* "the gift of Apollo ;" and we may even suppose that the birth of this child was the fulfilment of some prayer, made to the patron god.

Fourth.—The figure of Apollo is portrayed on the square copper coins of Apollodotus, standing exactly in the same attitude as that in which he is figured on many of the tetradrachms of Eucratidas, which is worthy of notice, as it establishes a close numismatic connexion between the coins of these two princes.

Such are the facts which prove, in my opinion, the relationship between Eucratidas and Apollodotus , and my conclusion is still further borne out by the evident inferiority of the round Philopater drachmas to the square drachmas bearing the elephant and the Indian humped bull, which remarkable difference may be easily accounted for, by the fact, that the Philopater coins must have been struck by less skilful workmen, during the return from the Indian expedition; while the square drachmas, which are of superior execution, of bold relief, and of most beautiful make, would have been coined by the best artists in the metropolis of Bactria.

No. 2. A round copper coin, of large size, of middling make, and in fair preservation.

Obverse. Figure of Apollo standing half turned to the right; the chlamys falling behind, and a quiver at his shoulder, holding in his left hand an arrow pointed downwards ; his right hand raised and resting on the tail of the arrow. In the field behind the figure, there is a small elephant to the right. Legend disposed circularly ΒΑΣΙΛΕΩΣ ΣΩΤΗΡΟΣ ZωΙΛΟΥ; "(coin) of the saviour king Zöilus."

Reverse. A tripod. In the field to the left the Bactrian letter *t*, and to the right the letter *a*. Legend disposed circularly 𐨨𐨱𐨪𐨗𐨯 𐨟𐨿𐨪𐨟𐨟𐨯 𐨗𐨱𐨁𐨫𐨯, *Maharajasa trádatasa Johilasa ;* "(coin) of the great king Zöilus, the saviour."

The identity of this piece, in type, size, and make, with the round copper coins of Apollodotus, would seem to point out some close connexion between these two princes, which is further strengthened by the appearance of the elephant in the field of this coin, a type of most common occurrence on the silver coins of Apollodotus, and on the square copper coins of Heliocles, the grandfather of Apollodotus; on whose coins the elephant occupies the whole field of the piece, but on the coin of Zöilus is reduced to a mere symbol. The appearance of an elephant on this unique coin of a new prince, taken in conjunction with the identity of its type with another of the coins of Apollodotus, induces me to hazard a conjecture that Zöilus may have been a son of Apollodotus, and have succeeded his father for a short time on the throne of Bactria. For it appears to me scarcely possible that Apollodotus, whose coins are not very common, should have reigned from 148 B. C., the period assigned for the murder of Eucratidas, till 126. B. C., when the Bactrian empire was overthrown by the Scythians. I suppose that Apollodotus after having assisted Demetrius Nicator of Syria in his successful expedition against the Parthians, in B. C. 142, was finally defeated, and perhaps slain, by the Parthians under Arsaces, 6th Mithridates, about B. C. 140—at which time Mithridates having made Demetrius prisoner, is said to have extended his arms from the Euphrates to the Hydaspes. Upon the death of Mithridates, in B. C. 136, I suppose Menander to have established himself in the provinces south of the Caucasus, and to have added India beyond the Hypanis to his dominions, while Bactria Proper and Sogdiana were overwhelmed by an irruption of the Scythians in 126 B. C.

No. 3. A round copper piece plated with silver, of the size of a drachma. It is Horace who observes that "a good and wise man is not ignorant *(quid distent æra lupinis)* of the difference between true coins and counterfeits;" hence we may easily discern that this coin is a forgery, although an ancient one, for it was found amongst a heap of rusty pieces of copper, completely covered with indurated clay, and as no price was given for it, it is certain that it is not a forgery of modern manufacture; for where no money return was expected, there could be no inducement to go to the expence and trouble of making a false coin. The plating of the edges and of the letters is now worn off, and the letters appear sunk in the copper, amid the silver plating The piece is of good Grecian workmanship, and is similar in all respects to the tetradrachms of Antimachus, already known.

Obverse. Head of the king in the Macedonian helmet to the right, the ends of the diadem floating behind the head.

Reverse. The figure of Neptune standing to the front, holding in his right hand a trident, and in his left a palm branch. Legend in two lines βασιλεΩΣ θεου ANTIMAχου; "(coin of the king) Antimachus (theus).' Monogram in the field composed probably of the same letters XO, which appear on the tetradrachm belonging to Colonel Taylor, the British Resident at Bagdad. The same monogram with a square □ occurs frequently on the coins of Azes. M. Raoul-Rochette remarks upon the coins of this prince, that the titles of Theus and of Nicephorus, were *both* borne by Antiochus, 4th Epiphanes, and also that the figure of Victory found on the common drachmas of Antimachus was a type known on the coins of the same Syrian prince, from which remarkable coincidences, he justly concludes that the Bactrian prince Antimachus must have flourished at the same time as the Syrian king Antiochus, 4th Epiphanes, or about 170 B. C, and from the total absence of his coins in the classic ruins of Beghram, he deduces that Antimachus must have reigned north of the Caucasus. In all these observations, which are as just as they are acute, I most willingly concur; but I cannot say that I perceive even the faintest resemblance between the tetradrachms of Antimachus and those of Heliocles, although the same able numismatist has observed a strong likeness. M. Raoul-Rochette likewise supposes that the type of Neptune on the reverse, probably alludes to some naval victory, where Antimachus may have assisted Antiochus of Syria; which event he thinks is still further declared by the type of Victory found on the common drachmas of this prince.

The date of 170 B. C., would make Antimachus contemporary with Eucratidas; and the absence of his coins at Beghram, would point out the ancient Sogdiana as the territory probably ruled by him—which probability is rendered still stronger by the knowledge which we derive from Justin, that this country did not belong to the dominions of Eucratidas. It is not too much then to suppose, that it was during the reign of this king Antimachus, that the Bactrians "were worn out by wars with the *Sogdians*, Drangians, and Indians," as related by the same author; and that as a monument of their success, Antimachus impressed the figure of Victory upon his coins, and assumed the title of Nicephorus. As a further proof that these two princes were contemporaries, I will cite the analogies that we find in their coins, which are the earliest specimens, save a few square copper coins of Heliocles, that bear legends in Bactrian Pali; and it is a peculiarity remarkable in the coins of these princes, that we find no Bactrian Pali legends on their silver coins, excepting on those drachmas of Antimachus which are of a much lighter weight, indicating most probably a later period of his reign; for Antimachus assumed the Macedonian helmet, and most likely affected to disdain the Bactrian customs and language, in the earlier part of his reign. Here then we have two contemporary princes, Antimachus of Sogdiana, and Eucratidas of Bactriana, whose coins exhibit the two distinct characteristics found in the numismatology of Bactria—namely, coins bearing Greek inscriptions only, and those bearing both Greek and Bactrian Pali legends. These facts establish the certainty that these two princes must occupy places in their respective dynasties between the kings who used Greek inscriptions only, and those who used both Greek and Bactrian Pali legends, and this rank agrees exactly with that already assigned to these princes upon other grounds. Hence we may safely infer that Philoxenes in Sogdiana, and Apollodotus and Menander in Bactriana, must be subsequent to Antimachus and to Eucratidas; and that the numerous other princes whose names have been made known to us by bilingual coins only, must likewise be subsequent to these two kings, Antimachus and Eucratidas, whose coins form a transition series between those using the Greek language only, and those which bear legends in both languages.

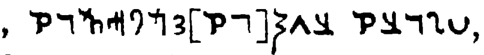
No. 4. A silver piece of the size of a drachma, of beautiful workmanship, and in excellent preservation.

Obverse. Head of the king helmeted to the right; the ends of the diadem floating behind the head, and the chlamys fastened on the shoulder. The helmet on this coin is similar to that found on many of the coins of Menander and of Eucratidas, and more especially to that found on the beautiful didrachm of Philoxenes—and differs from the Macedonian helmet, which is found on all the known coins of Antialcidas. Legend, disposed circularly, ΒΑΣΙΛΕΩΣ ΝΙΚΗΦΟΡΟΥ ΑΝΤΙΑΛΚΙΔΟΥ; "(coin) of the King Antialcidas, the victorious."

Reverse. The Olympian Jupiter seated, and slightly turned to the left. In his left hand is a sceptre; and in his outstretched right hand is a figure of Victory, which extends a chaplet to the left in one hand, and holds a palm in the other; to the left, and under the figure of Victory, is the forepart of an elephant, similar to that found on the common drachmas of this prince, but in a contrary direction, for on this coin it is portrayed facing the figure of Jupiter; a Grecian monogram in the field composing KAM, and differing from all the monograms yet found on the coins of this prince. The monogram as represented in the plate is faulty, and should have under the cross stroke of the A, thus making the monogram as I have read it; legend in Bactrian characters 𐨨𐨱𐨪𐨗𐨯 𐨗𐨩𐨢𐨪𐨯 𐨀𐨎𐨟𐨁𐨀𐨫𐨁𐨐𐨁𐨡𐨯 *Maharajasa jayadharasa Antialikidasa;* "(coin) of the great King Antialcidas, the victorious." It is worthy of remark, that this coin weighs only 35 grains, or a little more than a hemidrachma: but the best preserved drachmas of the common type of Antimachus weigh only 41 grains, and these light weights betoken a period subsequent to Eucratidas, whose drachmas are of the Grecian standard weight.

No. 5. A round copper coin of middle size, of good execution, and in fair preservation.

Obverse. A head bearded and wreathed, looking to the right, the shoulders and bust bare, the right hand grasping a thunderbolt, as if about to hurl it forwards. Circular legend ΒΑΣΙΕΩΣ ΝΙΚΗΦΟΡΟΥ ΑΝΤΙΑΛΚΙΔΟΥ; "(coin) of the victorious king Antialcidas." This bearded and wreathed head is no doubt that of Jupiter Nicephorus, whose figure forms the only reverse of all the known silver coins of Antialcidas. Here we have more of the bust than on the square copper coins of this prince; and the hand grasping the thunderbolt, which projects across the neck, shows that the undecided object, indifferently called "a palm, a thyrsus, or a club," which is found in the same position on the square copper coins of Antialcidas, is most probably only a thunderbolt; and as the head on these coins of Antialcidas, as well as on the similar square copper coins of Lysias, is undoubtedly bearded, I think we may safely infer that it represents Jupiter Nicephorus, and not the prince himself.

Reverse. The caps of the Dioscuri, surmounted by the stars Castor and Pollux, with two palms placed between them; in the field below is a monogram which seems to be composed of the letter MOI. Legend in Bactrian Pali, disposed circularly, , *Maharajasa jayadha(rasa) Antialikidasa;* "(coin) of the victorious great king Antialcidas."

This same type of the caps of the Dioscuri is found on many of the coins of Eucratidas, both in silver and in copper, and also on one copper coin of Lysias. The make of the square copper coins of Antialcidas, which is precisely similar to that of the square coins of Lysias, is totally different from that of all the square coins of Eucratidas, which I have seen; and this being the case, I do not suppose that the identity of type indicates any connexion between these princes—but merely proves that Antialcidas must be nearly contemporary with Eucratidas, or perhaps a little later, for all his coins yet found, both in silver and in copper, have bilingual inscriptions. With Lysias, however, I suppose the connexion to be closely and clearly indicated, for the coins of these two princes are identical in type, shape, and appearance, and also in thickness. The numismatic relations between this prince and Antimachus are striking and obvious; both princes wear the Macedonian helmet, which is likewise worn by Amyntas on a beautiful drachma in the possession of Dr. Chapman, and both take the same title of Nicephorus: both have the figure of Victory upon their coins, and both occasionally employ the same monograms; all which coincidences lead me to assign to Antialcidas a rank in the same dynasty with Antimachus and Philoxenes, and immediately following the latter prince, or about B. C. 150 to 140.

The princes whose coins I am next to notice are of uncertain origin, not one of them having a purely Greek name. On the early coins of this class, however, the names are expressed clearly enough in Grecian characters, but on the coins of the later princes the names expressed in corrupted Greek characters are doubtful, and vary on different specimens of the same king, while the name in Bactrian Pali on the reverse remains constant and unchanged; hence, as a man who carries a string through the mazes of a labyrinth, is, on his returning ignorant of the way, guided by that which he had before conducted, or as a father who directs his child in youth, is in his declining old age guided by that child; so do we find that the Greek names which had been our guide during the infancy of our study of the Bactrian Pali, are now in their turn, consequent on the decline and corruption of the Grecian language, elucidated by our more matured knowledge of the language of Bactria. It will be of advantage to bear this in mind, for the amount of corruption and barbarism to be found in each name expressed in Greek characters, will be of singular value in determining the relative route of these later princes, whose names truly and correctly expressed in the native character, will enable us not only to correct the bad Greek version of the coins, but perhaps also to assist in identifying them with princes of the same names, mentioned by native authors.

No. 6. A round copper coin of small size, of good workmanship, and in defective preservation.

Obverse. The Sinha, or maneless Indian lion, walking to the right, differing from the usual representation of this animal on the coins of Azas, in having one of the fore legs raised. In the field a Bactrian monogram. Legend disposed circularly, ΒΑΣΙΛΕΩΣ ΒΑΣΙΛΕΩΝ ΜΕΓΑΛΟΥ ΑΖΟΥ; "(coin) of the great king of kings, Azas."

Reverse. A female figure standing half turned to the left, holding in her left hand an object, which may be the horn of Plenty, and extending in the right hand an undecided object, which from a comparison with other coins is, I suspect, a small figure of Victory, holding out a chaplet. In the field to the right is a Bactrian monogram forming *ti*, and on the other side an indistinct object. Legend disposed circularly, 𐨀𐨩𐨯 𐨨𐨱𐨪𐨗𐨯 𐨪𐨗𐨟𐨁𐨪𐨗𐨯 𐨨𐨱𐨟𐨯, *Maharajasa rajatirajasa mahatasa Ayasa*; "(coin) of the great king, the king of kings, the mighty Aja." Two very imperfect specimens of this type were published by Mr. Prinsep in the 2nd vol. of his Journal, (figs. 11 and 12, plate vii.) but he was unable to recognize them at that early period of our knowledge.

No. 7. A square copper coin of middle size of good execution, and in excellent preservation.

Obverse. The king mounted upon a two humped Bactrian camel, walking to the right, with a bow at his back, and extending in his right hand a cross over the head of the camel. Inscription in four lines as in the preceding.

Reverse. The humped Indian bull, walking to the right, the upper part of the legs very thick, as if covered with long shaggy hair. Inscription on three sides 𐨨𐨱𐨪𐨗𐨯 𐨪𐨗𐨪𐨗𐨯 𐨨𐨱𐨟𐨯 𐨀𐨩𐨯, *Maharajasa rajarajasa mahatasa Ayasa;* "(coin) of the great king, the king of kings, the mighty Aja."

A specimen of this type has already appeared in the London Numismatic Journal; on that coin, however, there is a monogram composed of the letters ᑕ and X, while this coin has no monogram of any kind.

The Bactrian camel is figured on this piece in a much better style than on the round copper coins of this prince. These pieces would seem to form part of a series of coins struck by Azas, or Aja, to show the extent of his kingdom by the exhibition of animals characteristic of the different countries under his rule; the elephant and humped bull of India, the double-humped camel of Bactria, and perhaps the shaggy long haired bull of Tibet. The total absence of his coins at Beghram, proves that his rule did not embrace the country around Kabul, while the abundance of his coins found at Bajàwur, in the Punjab, and in the lower hills south of Kashmeer, taken in conjunction with the various animals displayed upon these coins, clearly show that his authority extended over the ancient Pencelaotis, and over the kingdoms of Taxiles and of Porus, embracing the whole country from the Jellalabad river to the country beyond the Hypanis, bounded to the north by the Indus, and to the south by the Ocean.

That his reign was a long one, is evinced by the variety and abundance of his coins, which form the most numerous and most complete, as well as the most interesting series of Bactrian coins yet discovered. His name, as it is written in the Bactrian Pali, is a genuine Hindoo appellation, being either *Ayu*, or more probably *Aja*, the *y* and *j* being permutable letters; and I incline strongly to connect him with the prince whose coins bear the legends of ΒΑΣΙΛΕΩΣ ΜΑΥΟΥ and of ΒΑΣΙΛΕΩΣ ΒΑΣΙΛΕΩΝ ΜΕΓΑΛΟΥ ΜΑΥΟΥ; for this name is certainly not a Greek one, while, on the other hand, it is a classical Hindoo name, as *Maya* (the son of Karryapa by Dana) which would be rendered in Greek by ΜΑΥΑΣ, adding the Σ to form the Grecian termination. Here then we have coins of two princes, with genuine Hindoo names, written in the Greek character, and with types almost all relating to India, some of which are of the highest interest, and of the greatest value. The Indian origin of these two princes is further declared in the plainest and most obvious manner by their being represented on their coins seated in the Indian fashion—(see fig. 11, pl. xvi. vol. IV. and figs. 12, 13, pl. xxii. vol. IV. Journal Asiatic Society of Bengal), and their Indian Government is shown by the absence of their coins at Beghram, and by their abundance in the Punjab.

I suppose these two princes to have reigned in the Punjab at the same time with Hermæus in Kabul; a supposition which is rendered extremely probable by the localities in which their coins are found, as well as by their style of execution, which betrays a declining period of Grecian art. The coins of Hermæus, which abound at Beghram, are rarely met with in the Punjab, which fact serves to point out the position of his kingdom in as clear a manner as could be wished. Now Hermæus must have been posterior to Apollodotus and to Menander, both of whom bear the same title of Soter, which Hermæus affects; and as both Apollodotus and Menander possessed the Punjab, it is equally certain that Maya and Aja, who ruled in the Punjab, must likewise have been subsequent to Apollodotus and Menander, and therefore contemporary, or nearly so, with Hermæus, or about 100 B. C. I have much more to offer regarding Aja (or Azes), but I will reserve it for a longer account of these princes, which I am now engaged upon I may, however, notice here a passage from Caius Julius Solinus, regarding the Bactrian camel. In chap. lii. he says "Bactri camelos fortissimos mittunt, licet et Arabia plurimos gignat. Verum hoc differunt, quod *Arabici bina tubera* in dorso habent, *singula Bactriani*." This gross error has probably arisen from a transposition of the words; but it is nevertheless sufficient to put us on our guard against the assertions of ancient authors, no matter how clear and positive they may be; and to make us exclaim with Hudibras—

——— Alas! what is't t'us
Whether t'was said by Trismegistus,
If it be nonsense, false, or mystic,
Or not intell'gible or sophistic,
'T'is not antiquity nor author
That makes Truth Truth, although Time's daughter.

No. 8. A round copper coin of middle size, of fair make, and in defective preservation.

Obverse. Figure of the king on horseback to the right; his right hand raised, and extended to the front. In the field in front of the horse a symbol which may be either a stiff representation of the caduceus, which is found on the coins of Maya, or it may be a monogram composed of the Indian Pali letters *m* and *n.*; the former is, I think, the more probable. Inscription in corrupted Greek, very imperfect, BACIΛЄC (sic) BACIΛЄϢN MEΓA......YNΔO..... "(coin) of the great kings of kings Undapherras."

Reverse. A figure, probably of Victory, walking to the right, her right hand extended to the front, and holding out an indistinct object, which is possibly intended for a chaplet; her left hand holding a spear. In the field to the right a square monogram, apparently composing X□Y, to the left a Bactrian monogram formed of the Bactrian characters *mi* and *sr* probably. Legend in Bactrian Pali, 𐨡𐨟𐨱𐨯 𐨨𐨱𐨪𐨯 𐨪𐨗𐨡𐨗𐨯 𐨨𐨱𐨪𐨗𐨯, *Maharajasa rajadirajasa mahatasa Andopharasa;* "(coin) of the great king, the king of kings, the mighty Andophara."

This coin only slightly differs from that published by Mr. Prinsep in his Journal for July 1838, No. 14; and is almost the same as that figured in the Numismatic Journal of London, No. — of plate 3, which Professor Wilson has given to Azes, but which is undoubtedly a coin of Undopherras or Andophara.

The coins of this prince, which I have seen, are of three different types, all exhibiting very different styles of execution; some being of fair workmanship with good Grecian letters, whilst others are utterly barbarous. These facts, which show, by the variety of mintage, the numerous mints established by this prince, likewise show the wide extent of his rule.

The name of Undopherras, which has a striking affinity to the well know Persian names of Phrataphernes, Dataphernes, Radhaphernes, and Tissaphernes, and more particularly to Intaphernes, would lead us to suppose him to be a Parthian, or a Persian; a supposition which is almost established by the evident Parthian type of the coins of this prince (or of one of his direct descendants) published by Colonel Stacy (Jour. As. Soc. Bengal, April, 1839). His name is spelt on some specimens Undopharas, which agrees much better with the Bactrian Pali reading of Andophara, than the usual spelling of Undopherras.

His coins, which are common at Beghram, and of frequent occurrence over all Ariana, are but rarely met with in the Punjab. These localities point out the extent of the kingdom of Undopherras, which must have embraced the Paropamisus, with Aria, Drangiana, and Arachosia, and most probably also Gedrosia, a territory bordering on Parthia, and which belonged occasionally to the Parthian empire itself, but separated from it by the natural boundaries of the great salt desert "and the vast Carmanian waste." This was the most eastern province of the Parthian empire during its most flourishing period, and after the defeat and death of Phraates 2nd, and of his successor Artabanus by the Scythians, and the consequent destruction of the empire, and after the commencement of the distant western wars with the Romans, and with Tigranes 1st of Armenia, which drained the eastern provinces of Parthia of all the forces necessary to keep them in subjection; no position could be more favorable, no circumstances more tempting for successful revolt, and for the establishment of an independent monarchy. Now from the evidence furnished by the coins of Abalgasa, we may deduce two positions of much value to our argument; *first,* Abalgasa, or Abalgasus, who calls himself the son of Undopherras, would seem, from the similarity of his name to the well-known names of Æb-azus, Bacab-azus, Pharnab-azus, and Artab-azus, to have been of a Persian or Parthian family; thus strengthening the supposition which I have already advanced, regarding his father Undopherras, that he was of Persian or Parthian family; and, *second,* that Undopherras, or Andophara, was most probably the first of his family, who had enjoyed *sovereign* power, as his coins make no mention of his father. Hence we may not unreasonably suppose that this Undopherras, the founder of monarchy in his own family, was a Persian Satrap placed over the eastern provinces of the Parthian empire, about 80 B. C., and that he profited by the disturbed state of the country to make himself independent. This supposition is much strengthened by the fact, that the walled town of Furrah, which is surrounded by ancient ruins, is in the midst of the countries in which this prince's coins most abound; and it may very possibly have been the capital of Andophara and of his dynasty; for this town was called *Parra* by the Greeks, and I believe also *Phra;* although its native name was more likely *Phara* (or Furrah), and in support of this being the true reading, I may adduce the following quotation from Lycophron (Cass. v. 1428).

———*κιμμερος θ'ὁτως*
Σκια καλυψει Περραν, αμβλυνων σελας,

in which the word Perras, used to signify " the sun," is only a Hellenized form of the Egyptian Phra or Phara; and hence we may conclude that Undopherras is only a Grecian rendering of Andophara (or Andophra) the very name which is found in the Bactrian Pali legends of the reverses of his coins.

To omit nothing that may possibly be of use to us in elucidating the history of this prince, known only by our coins, I will add my conjecture that Undopherras, or Indopherras, may very probably have been a descendant of Intaphernes, one of the seven conspirators against the Magian Smerdis. The names do not differ nearly so much in their spelling, as the names of Orientals generally do, when written by Europeans of different ages and nations; and we have already seen that the same word *Phra* or *Phara* has been rendered both by *Parra* and by Perras. We know besides, that the name of Darius descended in his family to the time of Alexander; and also that the name of Megabyzus, another of the seven conspirators descended to his grandson; while the name of his son Zopyrus was transmitted to his great-grandson as related by Herodotus. Here then we have evidence that the Persians, as well as the Greeks, called their children not by the father's, but by the grandfather's names, a custom which is still prevalent all over India, thus transmitting a name by alternate generations; hence if our Undopherras was descended from Intaphernes, the conspirator, it must have been about the 17th generation. Now Intaphernes was put to death by Darius soon after the death of Smerdis, or about 520 B. C.; at which time the *eldest* son of Intaphernes, the only one of his children spared, may have been ten years of age, making his birth in 530 B. C. from which 15 generations of 30 years, or 450 years being deducted, leave 80 B. C. for the birth of Undopherras, making him about 25 years of age when he assumed independence. This is indeed only a conjecture, but it is one so interesting, and also so plausible, that we may wish it, though we cannot prove it, to be true.

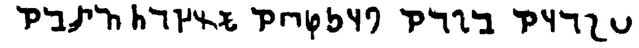
Nos. 9 and 10. Round copper coins of middle size, of fair make, and in fair preservation.

Obverse. Figure of the king on horseback to the left; the king's face half inclined to the front; the ends of the diadem floating behind; the right hand raised, and extended to the front; in the field before the horse the same monogram as on the coin of Undopherras just described. Legend in barbarous Greek—

On No. 9. — ΙΛΕΥ□ΗΓ□Υ ΒΑΣΙΛΕШΝ ΑΒΑΛΓΑΣΙ□ΥΙ
On No. 10. — .. ditto. ditto. ΒΑΒΑΛΓΑΣ□ΛΙ

which I read as ΕΛΕΥ⊡ΗΡ□Υ ΒΑΣΙΛΕШΝ ΑΒΑΛΓΑΣ□Υ "(coin) of the deliverer of kings, Abalgasus," where ΙΛΕΥ⊡ΗΡ□Υ is used for ΕΛΕΥΘΕΡΙΟΥ. It is indeed quite possible that the doubtful letters may be ΑΔΕΛΦ□ΥΙ□Υ but the plural ΒΑΣΙΛΕШΝ is against this reading, as well as the Bactrian Pali legend of the reverse. The epithet of *Elentherius,* which I believe is altogether novel in numismatics, is well known as a title of Jupiter; and its substitution for the simpler Soter is quite in accordance with Oriental presumption; and taken in conjunction with the inferiority of the coin, it denotes a lower era of Grecian civilization, and a more flourishing period of the progress of barbarism.

Reverse. A male figure moving to the right, dressed evidently in the Indian *dhoti;* and from the ends of a diadem appearing behind his head, I should suppose him to be a royal personage; the right hand is raised and extended before him, holding out an indistinct object, not unlike the *hankboos,* or elephant goad. In the field are two Bactrian monograms which have baffled all my endeavours to read; the upper portion to the left however looks not unlike a compound of the Grecian letters P and M. In the field of No. 10 there is likewise the Grecian letter B to the left of the figure. Legend in Bactrian Pali,



Mahárajasa trádatasa Abagasasa Andophara khudra putrasa; "(coin) of the great saviour king Abagasa, the younger son of Andophara." In this long and highly interesting legend there are but two doubtful letters immediately before *putrasa:* these two letters I read with some hesitation as *khudra,* the Pali equivalent of the Sanskrit क्षुद्र *kshudra,* which means "younger," and completes the legend more satisfactorily than any other word which I can propose.

A third specimen of the coins of this prince exists in Captain Hay's collection, of which he has kindly sent me impressions. The horseman on his coin is moving to the right, and the Grecian legend I am unable to read even plausibly, some of the letters being rubbed, and two or three lost by a chip in the sealing-wax impression; the legend however differs entirely from that of the coins just described, while the Bactrian Pali legend agrees in every single letter with the legend deciphered above.

Two other coins of this prince, in the collection of Dr. Chapman, of the 16th Lancers, are, through his kindness, now lying before me. One of them is like Captain Hay's coin, and has the horseman to the right, but neither of them is so perfect as the worse coin of the two engraved; and they lend but little assistance towards reading the Grecian legend: one of them has ΙΛΕΥ ... □Υ ΒΑΣΙΛΕШΝ, which agrees with the inscriptions of the engraved coins; and tends to confirm the correctness of my reading of ΙΛΕΥ⊟ ΗΡ□Υ for ΕΛΕΥΘΕΡΙΟΥ. The Bactrian Pali legends give no more than the name of the prince and of his father. The only doubtful letter in the name is the third. On No. 10 this letter is ƅ; being almost the same as our own numeral for five; and this same figure is on Captain Hay's coin. On one of Dr. Chapman's coins however the third letter is ɗ; being the same as the last, reversed, but on the other coin it is J; which last is probably the same as the first, much straightened, and precisely what I should suppose would be the written form of the first; the reversed form may easily have occurred from the neglect of the engraver; this reduces all these forms to the first ƅ; and this character must therefore have the value of the Greek Γ, for there is no appearance of any compounded ᑫ *l* in it. If I am right in the value which I have assigned to this letter ƅ or J as *g*, then must the initial letter of the legend on the coins of Kadaphes Zathus, S be *gh*, for it is formed upon the same principle as the *kh*. On one of Dr. Chapman's coins the second letter ᒧ is inflected with the vowel *á*, which therefore makes the second syllable of the name a long one, *Abágasa*.

On the two coins which have the horseman turned to the right, the monograms of the reverse differ from those shown in the plate. To the left of the figure is a square monogram similar to that which is seen on the coin of Undopherras, No. 8; and to the right is a character like a badly formed M, surmounted by a large dot, under which, on Captain Hay's coin, is the letter ꝛ, *a;* and on Dr. Chapman's coin a different Bactrian character inflected, but which is too indistinct to be readily deciphered.

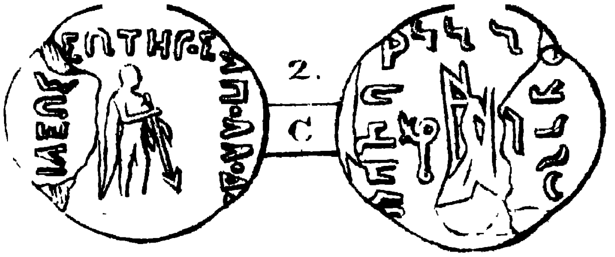
The name of Abalgases has an evident affinity to the Parthian ΒΟΛΟΓΑΙΣΗΣ or ΒΟΛΑΓΑΣΗΣ, the Vologases, and Balases of Roman history, of which the original Parthian name was most probably Bálagasa or Bálgasa; for the Pehlevi inscription on a Sassanian gem was read by Ouseley as "*Balgezi Yezdani,*" Vologases, the divine; the Balash or Balatsha of Persian historians. I have therefore little hesitation in recording my belief that Abalgases, Bologaises, and Balgezi are but different spellings of one original name—Bálgasa or Abálgasa.

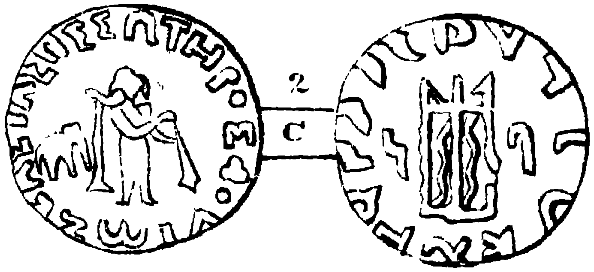
This naturally leads me to the consideration of whether this prince was one of the Parthian kings of that name, or another independent prince of the same age and nation; which latter appears to be much the more probable. In my remarks upon the coins of Azas, I have already shown that there was an independent dynasty of princes reigning near Kabul, cotemporary with Mayas, and his successors in the Punjab; and this position, which I deduced from an examination of the coins, seems to be pretty clearly established by the following extract from Professor Lassen's article on the Bactrian language; who, quoting Ptolemy, says, "the western half (of Kabulistan) belonged to that nation, whose separate tribes are comprehended under the general name of the Paropamisades; the eastern is numbered with the Indians; but the plain at the lower part of the river is *now* under the power of the Indo-Scythians." By *now,* Ptolemy must of course refer to his own times; but this passage sufficiently proves that the part of the country spoken of had originally belonged to the Indians; most probably under Mayas, Azas, and Azilisas. Now the fair execution of the coins of these princes proves them to have flourished soon after Menander, or about the same time as Hermæus at Beghram near Kabul, that is B. C. 100. Vonones would appear also to have been cotemporary with Azas, from the style and type of his coins, which are similar to those of Azas, who flourished probably in B. C. 80. Again on two of Dr. Chapman's coins, which will soon be published, we have on the Grecian side a name which I read as Spalyrisas, while the reverse has the name of Azas in Bactrian Pali; thus establishing beyond a doubt that these two princes were cotemporaries, and rendering it highly probable that Azas was the son or brother of Spalyrisas, and an associate in the kingdom, or that he was tributary to that prince. Now the coins of Spalirisas have an intimate connexion by their type with the coins of Vonones, which have on the reverse the name of Spalháras, bearing an evident family resemblance to the name of Spalyrisas; and thus affording an additional evidence that Vonones must have been nearly cotemporary with Azas, about 80 B. C., and consequently much anterior to the Parthian Vonones 1st, who reigned in A. D. 4—14.

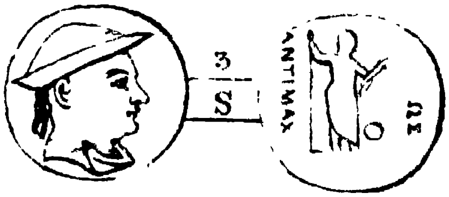
The coins of these Indo-Parthian kings are highly interesting, as they seem to hold out a hope that we may bring the Arsacidan chronology to our aid; but as in the case of Vonones, so also in that of Abalgasus, there appear good reasons for believing that our Indo-Parthian prince was much earlier than the Parthian king Balgasa or Vologases. The general appearance in type, make, and style of characters observable in the coins of Abalgasas and of his father Undopherras, connect these princes too closely with the Indo-Parthian Vonones and his successors Spalyrisas and Spalurmas, to permit the identification, however much we might wish for it. For the Parthian king Vologases 1st did not begin to reign until A. D. 50, which is nearly 100 years later than the period of our Abalgasas, supposing his father Undopherras to have succeeded to the family of Vonones and his successors. Again, the Chinese historians affirm, that in 26 B. C. the Indo-Scythians conquered the whole of Northern India, of which they retained possession until 222 A. D.; and Ptolemy, in describing the extent of the Indo-Scythian empire, says, to use the words of Professor Lassen, that "its main part is situated along both banks of the Indus." Now this is the very country in which the coins of our Vonones and Abalgasus are found; and hence we may almost confidently say, that they must both have flourished before the final conquest of the Indo-Scythians in B. C. 26, and consequently cannot be identified with the Parthian princes of the same names, whose reigns fall within the most brilliant period of the Indo-Scythian rule. Indeed if I have read the Bactrian Pali legend of the coins of Abalgasus rightly, we have the plainest proof that *he* cannot be identified with any Parthian prince, unless we suppose his father Undopherras to have been also a king of Parthia; a supposition which would only involve us in still greater difficulties.

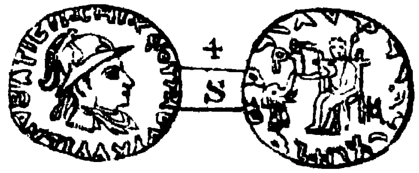
There is a curious passage in Tacitus (Ann. lib. xi. c. 10.) which, if true, would almost show that the Parthian arms had not penetrated into the country of the Paropamisades before A. D. 44. In speaking of the successes of Bardanes, who had pushed his conquests beyond the river Sinde, which divided the territories of the Dahæ and the Arians, he adds, "igitur extructis monumentis, quibus opes suas testabatur, nec cuiquam ante Arsacidarum tributa illis de gentibus parta, regreditur." Professor Heeron, however, says, that Mithridates 1st extended the frontiers of the Parthian empire as far eastward as the Hydaspes. Tacitus indeed does not say that no former Parthian king had pushed his arms so far; but when he says that none of the Arsacides before Bardanes had taken tribute from those nations, we may suppose that none had before penetrated so far to the eastward; for in all wars, and more especially in those of the east, conquest is followed by exactions, which are usually called by the victors by the milder name of tribute. The authority of Tacitus is also much strengthened by the silence of Justin, who in mentioning the conquests of Mithridates 1st, over the Medians, Hyrcanians, and Elymæans, merely adds "imperiumque Parthorum a monte Caucaso, multis populis in ditionem redactis, usque ad flumen Euphratem protulit."

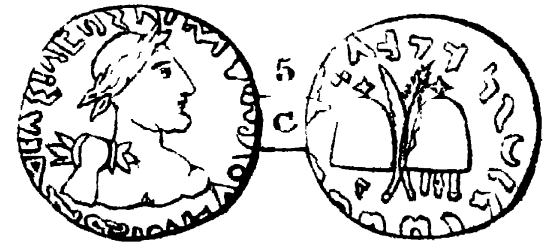
From these passages therefore it would seem to be almost impossible to identify our Indo-Parthian king with the 1st Vonones, who was one of the predecessors of Bardanes. Professor Lassen, however, supposes him to be the same as the 2nd Vonones, who reigned for a few months only in A. D. 50: but I have already shown that our Vonones must have been nearly cotemporary with Azas, about 80 B. C; as their coins are similar in type, make, and genarel appearance. In addition to which we have the united testimony of the Chinese historians, and of Ptolemy the geographer, in favour of our Vonones having been an independent prince: for they both declare that the country in which his coins are found, was under the dominion of the Indo-Scythians during the reign of the 2nd Vonones of Parthia; but on this subject I shall speak more fully when I come to describe the coins of the Indo-Scythians themselves.

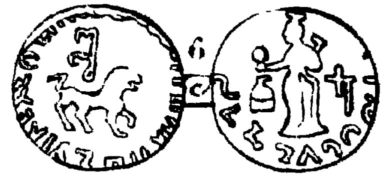


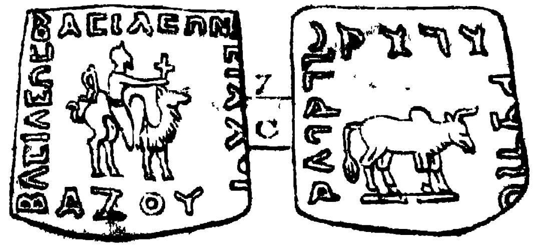


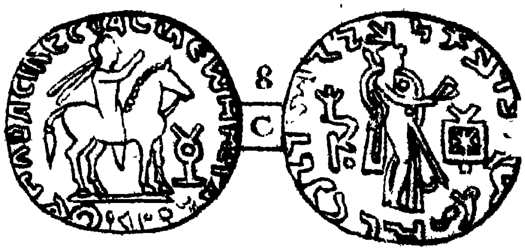


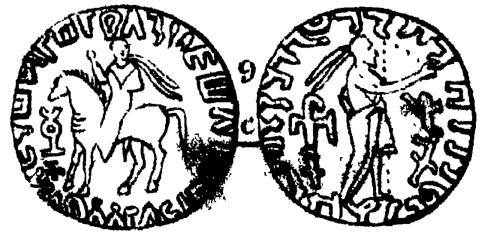


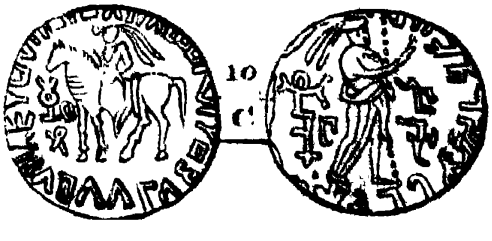






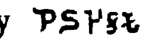
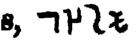






A. Cunningham, del.

When I wrote my notes upon Captain Hay's Bactrian coins, I had not given any attention to the study of the Bactrian Pali character, my readings of the native legends of those coins were therefore made according to the values assigned to the different letters by my late lamented friend James Prinsep, all the observable differences in my readings having been errors of the press. Had James Prinsep lived, he would long before this have perfected what he had so successfully begun. Since then, however, I have examined not only all the coins within my reach, but also all the engravings published in the Journal des Savants, in the Numismatic Journal, and in the Journal of the Asiatic Society of Bengal: and after a careful examination of them all, I have been led to some discoveries which appear to me to be of sufficient consequence to warrant their publication.

The name of Undopherras on his own coins is invariably represented in Bactrian Pali by ; which Mr. Prinsep rendered by Farahatisa; he however doubted the correctness of his own reading, which was based upon an assumed and false value of the initial letter. On the coins of Abalgasus the name of Undopherras is written with a slight variation thus, ; the turn at the foot of the initial letter being to the left instead of to the right, and the fourth letter being the common *r* instead of the cerebral *r*. Now there are four syllables in the Greek name, and in its Bactrian Pali equivalent there are an equal number of letters, forming with inherent or written vowels the same number of syllables, and consequently agreeing exactly with the Greek name, thus giving us the best possible clue to the value of each of these Bactrian Pali characters, which I will now examine separately.

1st. The first letter is found also as the initial of the name of Agathoclea, in which name it represents the Greek *a* short. Prof. Lassen has strangely supposed the initial letter to be *m* inflected with the vowel *e*, making the first syllable *me*! In the name of Undopherras this letter stands for a short *u*. It is found also in the middle of the names of Spalurmas, and of Abalgasas, in the former representing *u* short, and in the latter *a* short: for I believe that Abalgasus might with equal correctness have been written Abalgysus, as Megabyzus is always written.

From these four examples of the use of this letter, there results the certainty that it represented the short vowels *a* and *u* of the Greek, both of which have the sound of the short *a* अ of Sanskrit, which has the exact pronunciation of the first syllable of the name of Undopherras. Here I may notice that Undopherras, Spalurmas, and Abalgasas are not Greek names, and therefore we ought not to look for the Bactrian Pali equivalents of the Greek letters used in expressing their names; but we should reverse the process, and seek for the Grecian equivalents of the native characters: for the Greek names vary on many of the coins of these later princes, while the native names are always the same; and this is more especially the case with the coins of Spalurmas, which exhibit the different Greek versions of Spalurion, Spalumon, and Palurman; the last being found on an unpublished coin belonging to Captain Hutton, which wants only the initial *S* to make the name perfect. The same letter which is found initial in Agathoclea and in Undopherras, is here found medial; and by my discovery of its true value, I am able to correct the various corrupted Greek versions by the native name, which remains always the same. The characters are five, 𐨯𐨿𐨤 𐨫 𐨀𐨍 𐨪 𐨨; of which the first is an evident compound of 𐨯 and 𐨤 or *sp;* the second letter is *l;* the fourth *r;* and the last *m;* wherefore the third letter can only be *u*, used as the initial of the latter half of the name, and thus the whole name becomes clearly *Spal-urma*, or with the Grecian termination Spalurmas, of which the genitive would be Spalurmon; and this last we may easily discover with but slight alterations in the different Greek versions.

The turn at the foot of the initial letter in the name of Undopherras, I suppose to represent *n*, making the initial syllable YN, for one foot turn to the left is exactly the same as that which is found at the foot of the initial letter in the names of Antimachus and Antialcidas, where it unquestionably represents *n*.

2nd. The second and fourth letters of the name of Undopherras are the same, one of them being merely inflected. To this letter Mr. Prinsep assigned the value of *r*, which is correct: but I am prepared to show that it has also another value, and that it represents the cerebral ड *d* of the Sanskrit, which is commonly pronounced ड़ *r*. As an equivalent of *d* it is found on *all* the large round copper coins of Apollodotus; and also in the name of Diomedes, where it is initial and inflected with the vowel *i*, thus 𐨡𐨁 *Di*, rendering the name of Diomedes very satisfactorily as Diyamédasa 𐨡𐨁𐨩𐨨𐨅𐨡𐨯; hence we learn that the second syllable of the name of Undopherras is *do*, the sloping stroke to the left downwards being the vowel *o*, with which the *d* is inflected; and precisely the same mark which is found to represent *o* in the name of Zöilus.

To the second letter therefore in the name of Undopherras, I have assigned the value of *d*, but as this letter occurs again as the representative of the Greek double PP, it must have another value, and be equivalent to an aspirated or double *r*; and this indeed is the precise sound which the Sanskrit cerebral ड *d* frequently has, as ड़ *ṛ*. Here then we find that by giving to this letter *s*, the value of the cerebral ड *d* of the Sanskrit, it completely fulfils all the conditions in which it is found upon the coins; thus most satisfactorily establishing the correctness of the value which I have assigned to it, and at the same time leading to the discovery that the third letter of the Bactrian Pali name of Undopherras can be no other than *ph*, thus rendering the whole four characters literally Andophara.

Alexander Cunningham.

(To be continued.)

Notes of a March from Brimhan Ghat on the Nerbudda, to Umurkuntuk, the Source of that River. By G. Spilsbury, Esq.

In the Asiatic Journal, for August 1834, appear some notes of mine from Tendookherie, across the valley of the Nerbudda south to the table land of the Puchmuree, or Mahadeo hills. In the following paper I propose to give the result of my observations from Brimhan Ghat to Umurkuntuk, the holy source of the Nerbudda river. The notes will comprise three different routes, and I have some hope that by the aid of the accompanying map, and the specimens forwarded for presentation to the Museum, that I shall have added a mite to the Geographical and Geological knowledge of this as yet little travelled portion of Central India.

In the construction of the map, for which I am indebted to the able pencil of Captain Reynolds, Madras Army, I have to remark that its correctness depends on the places written in Capitals, which are laid down from the map of these territories, furnished from the Surveyor General's office, on a scale of eight miles to an inch. The notes commence at Brimhan Ghat near Chawurputhur; on leaving which we struck off in a S.S.W. direction, crossing the valley of the Nerbudda, which yields but little variety to the geologist, being a fine rich black soil of decomposed trap, intermixed at the banks of most of the Nullas with calcareous tuffa.

At Beerkherie, the Shair river is crossed, its bed compact basalt, and the road lies through rich black soil up to Burheyta, where it changes to sandstone. This now insignificant village has been the site of a large city, and extensive vestiges of a fort, palace, temples, buolies, tanks, and gardens, are yet to be traced. The temples are generally Boudhist, or belonging to that æra, and five large images of compact basalt, three of which are standing, and two in a sitting posture, have been ignorantly assigned by the natives of this place to the five Pandoo brothers—Dhurum, Bheem, Urjoon, Sahdeo, and Nukool.

Low sandstone hills, varying from a few feet to a couple of hundred, covered with thin jungle, is the characteristic of the country, with vallies of more or less extent of decomposed trap; about three miles east, near Nandeea, is a hill of quartzose pebbles; about 100 feet up is a deposit of steatite No. 1, called by the natives Gora Pan, and largely exported; in contact with it lie the specimens Nos. 2 and 3.

At Sreenuggur, the Omar nuddee, the bed of which is composed of the schist No. 4 and 5, and from a hill adjacent the limestone No. 6 is procured. The next five miles is a similar siliceous formation as that from Burheyta to Sreenuggur, when you come to trap boulders, making the road more or less stony and unpleasant. About three miles short of Dhooma, the road winds up a steep ghatee of compact basalt, at the top of which is an undulated table land of considerable extent. From this to Jhiria, where this table land is again descended, the country is of the uniform character found in trap formation; at Kuhanee, jasper and quartz No. 7, amygdaloid No. 8, and travertin No. 9. The beds of the Nullas are compact basalt; the only exception seen was at Pindraee, where the Thanwur Nulla (a feeder of the Wyn Gunga and Godavery,) is crossed, at which the limestone No. 10, crops out on its left bank.

At the bottom of the Jhiria Ghattee, the descent of which is neither so long or so steep as that ascending to Dhooma, boulders of indurated red clay, No. 11, are met with. The remainder up to Mundlah is a well cultivated plain. The ford of the Nerbudda is compact basalt, No. 14, and this specimen is a type of the formation wherever found in these territories.

Mundlah has been a place of note, but since General Marshall dismantled the Fort in 1818, the town has gone to decay, and is now but an insignificant village. The river being full here from bank to bank, 326 yards, and totally unfordable from hence to Ramnuggur, (a distance of twelve miles) has a very picturesque appearance, aided much by the ghats and temples along its right bank, and the mouldering battlements and bastions of the fort. From this we proceeded along the right bank, all trap formation, road stony from boulders; about six miles crossed the Putwara nulla, where veins of wacke with feldspar No. 12 and feldspar No. 13 occur; after this the road is undulated, a series of ascents and descents through rather a dense tree jungle until you again approach and recross the river, the bed of which is trap, intersected in some places with veins of calcareous spar wacke No. 15, 16.

Ramnuggur in the days of the Gound Rajas, was a place of note. There is still an old palace of four stories, built by Hirdee Sah some 200 years ago, and half a mile off one by his Dewan, little of which remains beyond the walls, but of the palace, situated on the bank of the river, and looking up a long reach of it, little decay has taken place beyond what is to be expected from neglect and desertion.

The general feature is a square with an inner court, in the centre of which was a Tanka* (from whence I presume we got our tank) and garden. The whole of the rooms, especially of the lower floor, are occupied by the villagers, and a considerable number of families have found habitations therein. The village is now insignificant, and there are but very few remains of its former state, when kings held their court. In the village, and at the eastern side of the court of an old temple of Mahadeo is the stone on which, in Sanscrit characters, is graven the list of the sovereigns from Jadoo Rae, Sumbut 415, as detailed by Major Sleeman in the Asiatic Journal for August 1837. On leaving Ramnuggur we had to make a detour to the south, in order to get again into the direct road from Mundlah. The road is bad and stony; we passed up a defile, and crossed over a hill called Doondooh of trap formation. The ascent was easy, but the descent steep and stony, on which you emerge into an open and extensive plain; at the bottom of the Ghatee cross a small nulla, in which is found granite No. 17; a mile or two further is the Datta nulla, near the village of Lutooa. From this the specimens of limestone No. 18, 19, were procured, and from this locality lime for the buildings at Ramnuggur was made; about 6, cross the Mutyaree river, rather a large stream, which some way down joins the Banjur, which flows into the Nerbudda immediately opposite the Fort at Mundlah.

The ford of this nulla is composed of granite No. 20 and 21, but about two or three hundred yards further up the river a ridge of compact basalt crosses it, after this the soil changes to a sandy one, the general rock being No. 21, also intermixed with gneiss? No. 22, 23, and 24, syenite. At this place, Unjoneea (and where we regained the direct road from Mundlah) was shot by Captain Tebbs, 33rd Regiment of Native Infantry, a pair of the horn-bills (first seen in the dense jungle on the banks of the river near Ramnuggur,) and designated in Cuvier's Animal Kingdom, as Buceros Malabaricus; the bird was also seen at Umerkuntuk, but I am not aware of its being met with in any other part of these territories.

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* I first heard this word used by a native in Betool district; on asking him if at the top of Bowergurh there was any spring, he said no, but there was a Tanka or place made of pukka, stones and cement, for holding water.

Our next march was near Bichia to the Khoolar nulla, fourteen miles, the first two miles being the same primitive formation, granite and massive quartz, when we ascended a small ghatee of trap boulders, passing over a plain, little jungle, and scarcely any cultivation; about 9 a gradual descent to the Mutyaree nulla, the bed compact basalt; leaving a village, Oomurwaree, to the right; more cultivation about. From here to the Khoolar nulla small trap hills are crossed of the same formation.

The next was Motee nulla, 16 miles; up to the Dutla nulla the formation was the same basaltic one, but in the bed of this nulla granite same as No. 21, at Unjoonea. The soil now changes to a siliceous one, with large masses of white quartz jutting out on a bleak open plain, singularly devoid of the traces of man in the shape of cultivation or habitation. About eight miles a fine pebbly stream with well wooded banks is passed. The Hullown, (which joins the Boornerh near the village of Ghooghree, on the direct road from Mundlah to Ramgurh,) about five miles more, over grass plains approach the gorge of hills, and the jungle becomes more dense; ascend a small ghatee, the Jogeegoopha, the hills on each side rising above, the formation is limestone No. 25 capped with trap. On descending towards the Motee nulla, it again becomes massive quartz. In this nulla we first observed the laterite No. 26, 27, 28, 29 (so extensive a component of the Mikul hills) iron ore No. 29, chert No. 30, indurated iron clay No. 31, sandstone No. 32, indurated clay and calcedony No. 33.

In this and the preceding march, the sal tree, in large clumps, gives the country a very peculiar appearance, and trees of any other kind are not general.

Rajadhar 14 miles, road good, undulated country, grass plains with clumps of the sal, formation laterite, with conical hills of trap up to Munglee, about which are some small Goandee villages, and cultivation. Soon after this the road lies between hills thickly wooded, and high grass; pass through a defile, the Sukra ghatee, in which is limestone No. 34, intersected by veins nearly vertical, No. 35, 36, 37, 38, 39. On emerging from this, there is a considerable open space up to Rajadhar on the Phene nulla, which is situated at the edge of a very dense jungle and hills. The bed of this nulla is chiefly large boulders of laterite, and a greenstone No. [illegible]0.

Boorla, about 15 miles by the footpath, and about 19 by the road which the cattle and baggage went.

On leaving Rajadhar the road lies between hills of laterite, close dense jungle, over a trap hill to Bunder Motee, spring and ghat, where limestone No. 41, and at the bottom of the descent steatite No. 42, and that with argillaceous veins No. 43; from this the descent is rough and stony, and just before reaching the stream Brinjuree, or Murrum Joree, the syenite No. 44, and in the bed of it granite No. 45, 46; intermixed are boulders of No. 40. On arriving at the nulla, bamboos are again observed, and the sal disappears. From this the road winds up a hill not very steep or long, pass along a flat, when a long steep stony descent commences, the chief rock being No. 45, 46; at the bottom emerge into a small level plain, the hills approaching on both sides; about two miles on the Puraha nulla is crossed, and again a mile or so on, when the road is more open, and the jungle by no means dense; in front are a range of small conical shaped hills of no great height, the ridge of one of which is passed, the first ascent of which is sandstone No. 47, next in strata running nearly north and south of clay-slate No. 48, and further on No. 49 of the same formation; after this the hills are entirely cleared, and the country is a very extensive open plain bounded to the north by the low conical hills which we have passed over, nearly bare or only stunted jungle, and behind, towering above, the line of the Mekul range. On leaving Rajadhur all the springs and nullas are feeders of the Mahanuddee. At Boorla is a small circular hill, evidently a similar formation to the hills last passed over, specimen No. 50.

Pando Tulao, eight miles, a march in the plain; the villages are more numerous and cultivation is extensive, much of it rice; a spur of the hills comes down close on this place, the formation of which is limestone No. 51, and in a small rivulet close to our camp, rocks were projecting at an angle of 45°, running east and west, and the strata so disposed, as to have much the appearance, at a short distance, of the scales on the back of the Manis; they were limestone No. 52.

Pururcea nearly seven miles; the same plain. In this march a fine stream, the Hamph nulla, the bed of which is a reddish limestone No. 53. Pururcea itself is a large village for this part of the country, the houses with one single exception (that of the Zemindar's, who was building a brick edifice) are all built of split bamboos, plastered for the walls, and grass chuppers.[*]

Umuldeha, nine miles; the same open cultivated country. About three miles on, cross a small nulla from the hills, skirting our left, the bed of which is limestone No. 54, 55, as also a small circular eminence No. 56;

[illegible] cheapness of food here was as unexpected as agreeable to our people.

Seers *per* Rupee	In camp	15	Ata	38	in the village
	Ditto,	12	Gram	52	ditto.
	Ditto,	14	Rice	50	ditto.

at the next stream, close to the village of Kurpee, the same limestone forms the bed as at the Kamp nulla No. 53.

Khoorea, nine and three quarter miles. On leaving camp the Agur nulla, the bed of which is rolled pebbles and sand, is crossed, and the first two miles is over the plain we have had since Boorla, after which we entered jungle gradually increasing until it becomes a dense tree (among them the sal again) and grass forest, all the way to the Munyuree nulla, the bed of which is granite (with rolled pebbles and sand) as per specimens No 57, 58, 59, 60, 61; a little to the left of the ford is the steatite No. 62, strata running nearly east and west, diagonally crossing the bed of the stream, also parallel the quartz No 63, 64, in thin laminæ. At this place was shot by Lt. Clement Browne a beautiful squirrel, which Colonel. Sykes named Sciurus Elphinstonii (As. Jour. vol. i. p. 165); they are also found in the Mahadeo hills.

Kutamee, nine and three quarter miles. This march skirts the Munyarie nulla, and is thick tree and grass jungle, but good road, and slightly ascending the whole way; the formation is granite and massive quartz, with exception of the bed of a small nulla which was basalt. At the village the bed of the Munyarie had ledges of compact basalt running across, and close to that gneiss No. 65, and higher up hornblende with feldspar No. 66; beyond and below, granite No. 67 and 68.

Lumnee, nine and a quarter miles. This is a bad and difficult march for cattle and baggage, the road being very stony. We crossed the Munyarie immediately on leaving camp, and two miles on a bad stony descent to a small stream, and the ascent not much better; pass through a dense forest, the diameter of many of the sal trees was very great. On reaching a stream about three miles from our camp the road begins to wind up a very long, and in places steep ghatee. The jungle exceedingly thick, from the summit of which is an extensive view over the plains we have left. The formation is primitive rock, at the top mica schist No. 69, and gneiss No. 70, 71. On attaining the summit, bamboos were very luxuriant and dense for a mile or so, a feature in the scenery not observed in the forest below. The road now winds along the crests of hills which brings you to a descent of about half a mile (neither so steep or stony as the ascent) into the plain of Lumnee; a few huts constitute the village.

Umurkuntuk, the source of the Nerbudda, eleven miles. The bed of the nulla is trap No 72, and about a mile further a nulla cuts through a hill of micaceous schist No. 73, and bed of the nulla No. 74. The road now is a series of ascents and descents covered with jungle; formation granite No. 75, mixed with sienite No. 76, 77, 78, 79. At the Bhereeghur nulla, compact feldspar No. 80, and granite No. 81, compose its bed.

The remainder to Putpura nulla, seven miles, primary rocks, the jungle very thick and dense; the bed of this nulla is composed of rolled laterite and trap boulders, lying on granite and quartz, where the rock shows itself; half a mile on the Sampghur nulla is crossed twice, a fine stream, and water most excellent. From it the specimen No. 82 quartz, mica, and feldspar.

On crossing this stream the second time, the ascent of the Jogee ghatee commences; formation trap boulders. The ascent is about a mile, in places steep, but very good for all laden cattle, baring its steepness, there being no rocky steps or ledges in it; the whole very dense tree, bamboo, and grass jungle. To the left, and on the banks of the nulla, tokens of a former site of a village, evinced by the plantain and mango trees; with exception of No. 83 marl, and No. 84 lateritish clay, the whole of the upper part of the hill is laterite, as specimens No. 85, 86, and the very summit No. 87. On arriving at the top a fine open plain, with a few trees scattered about, give a very park-like appearance to the scenery.

I shall now return, and trace the direct road to this holy spot from Ramnuggur.

Ramnuggur to Ghooghree thirteen miles; for the first two miles the open cultivated plain of the Nerbudda, when you approach hills and enter a defile with a gradual ascent: about two miles further, you come to a pukka boulee of the same style as the buildings at Ramnuggur. The road gradually closes into a few feet, and becomes steeper, the hills on each side rising up 100 feet above the road. The whole ghatee called Bidee is stony and bad, with dense bamboo grass and tree jungle infested by tigers. The formation is trap. On attaining the crest at six miles, the road opens out again, and the hills recede right and left; the soil is siliceous with quartz (massive and crystallized) and calcedony strewed about. From hence to Ghooghree the country is rather open, jungle thin, small hills about, with valleys and streams, and here and there a Gound village, with patches of cultivation; road very good from the crest. The village is rather large for this part of the country, and on the banks of a very fine brawling stream 200 yards wide, the Boorhner.

Sulwah, nine miles. A mile and half on, cross the Boorhner a short distance below its junction with the Hullown, these united streams are very considerable feeders of the Nerbudda. The bed is rocky (basalt); on leaving it there is a steep stony ascent of about half a mile, and a mile and a half further another of about 100 yards, which is a spur of the Patungurh hill, the peak of which towers some seven or eight hundred feet above; on its summit there is said to be a spring of water, and many fine trees could be seen. The crest has some appearance of a fort, and the natives declare it to have been made by the Deotas; on passing this hill there is rather an extensive plain to the south, with a few villages and some cultivation; the last two miles the hills gradually close in, and a defile with a gentle ascent is passed through, to the Tola of Sulwah, the village itself being off to the south-east about a mile.

Ramgurh, thirteen miles. The first five and a half miles is chiefly over a bare open undulated plain, crossed by a great number of little rivulets with a slight ghatee to descend; the road is then through a defile, along which flows the Kookrar and Bhurkindee nullas with lofty hills on each side, covered with dense jungle grass, bamboos, and trees, a distance of about three miles, when the Tendoo Ghatee, some 400 yards, is ascended; pass along table land, a mile or so when the hills recede, and an extensive valley running about north and south, not very broad, presents itself, through which rather a large stream, the Khurmer, flows; and at the east side and left bank on a small hill, is Ramgurh, the capital of a rajah, now lord of some 1400 villages; with exception of a pukka house, his residence, the village is entirely bamboo wattling and thatch.

Sumnapoor, nine miles. A good road up the valley of the Khurmer; several villages, and much more cultivation of rubbee than we have seen since leaving the valley of the Nerbudda.

Burbuspoor, six and a half miles. The road is the same as the preceding for the first two and a half miles, when we enter the hills on our left, and ascend a trifling ghatee called the Ghooghurwahee ghatee of about 400 yards, by no means steep, on attaining the crest of which, the aspect and appearance of the country is totally changed, partly from the predominance of the sal tree, and partly from the greenness of the grass; pass through a defile 200 yards wide, when the hills recede, and there is an open extensive plain with the Muchrar flowing through the village on its right bank.

Chukrar nulla, ten miles. Road lies across the valley of the Muchrar, through cultivation, about two miles, when the hills close in, and the Ludwanee ghatee is ascended, not long or steep, but stony; the descent is considerably steeper, but by no means bad for any cattle. On reaching the foot, skirt the hills on the right, plain level road, there being a large grass plain to the north; the last two miles bad and stony trap boulders.

Seeoonee nulla, ten and a half miles. On leaving the nulla small trap hills are skirted for the first three miles, when you enter a thick jungle and ascend the Mohtura ghatee, of easy ascent, the descent being steeper, but by no means difficult; the road then opens out into an extensive grass plain; it is to these grass plains that the thousands of cattle resort from the country below the ghats during the hot months; remainder open, constantly intersected with little streams, and no where did the water appear to be above a couple of feet below the surface.

Kurunjeea, eleven miles. The first part skirts and passes over some low trap hills up to the village Bukree, when the country opens out into a very large grass plain; the Nerbudda north, distant three or four miles; cross a stream, the Toorar, and up to the shoulder of a lofty hill with a conspicuous peak overlooking the village of Ramnuggur; remainder open; Umurkuntuk nine and half miles. The road lies through a small valley, in which flows the Kurmundal with lofty hills on each side, gradually closing in to the entrance of the pass, which becomes a dense jungle; the ascent is about a mile, and pretty steep, but not very bad for cattle; pass along a ridge where there is a small grass valley in which is a pool of water, called Hathee Dabur, and on descending a ridge, a spring issues from the head of a ravine, said to be the source of the Kurmundal nulla. There is a Chabootra, and many plantain trees at the spot, known by the name of Kurbeer Chabootra; after this two ridges are crossed, when you attain the table land, and about half a mile before reaching the Koond join in with the road from the Jogee ghatee, by which we ascended in the former march.

I have said but little on the geological formation of this route, for the reason that it is so simple, and affords so little variety; the first ghatee, which is the same range as the Doondoo ghatee, is unvaried basalt, and so continues the whole way the same formation, the hills and peaks from Patungurh being capped with laterite, and all the beds of nullas basalt; little laterite is seen in the plains until the Tendoo ghatee is ascended, when the soil is more or less of a reddish colour, and after ascending Ghooghurwahee ghatee the soil is entirely so; about Sulwah and Patun fossil shells, same as those from eighteen miles east of Jabulpoor, imbedded in indurated clay, are met with, and on the east side of the Mohtura ghatee is a small conical hill, containing similar shell breccia. In the latter are found the shell delineated in the Asiatic Journal for September 1839, plate.-- fig. A. 11. originally found on the Pureyl ghat, which is on the first plateau on the Mekul hills overlooking the plains of Soohagpoor; a few bivalves also have been met with in this locality. Travertin was found near the summit of the Mohtura ghatee, and a reddish sandstone formed the bed of the Seeoonee nulla, a mile or so before its junction with the Nerbudda. With these exceptions laterite resting on basalt is the characteristic of the country.

The table land of Umurkuntuk constitutes the second plateau of the Mekul hills, and is but of small extent, six miles either way would bring you to a precipitous descent.

East from the Koond, less than a mile, is a bluff rock of basalt, over which a very small stream trickles with a fall of 252 perpendicular feet, and which the Bramins assure you is the Son Bhuder, whereas the latter rises from a swamp near Pindraee, and the former joins the Arup, one of the feeders of the Mahanuddee. West from the Koond, four and a half miles, is the first fal of the Nerbudda, 90 feet, over compact basalt No. 90, and called Kupildhar, after the celebrated Moonee of that name; from the summit of the hill at Jogee ghat south to the crest of the descent at the Punkhee ghat north will be under six miles, and from the Kookre Moorghee ghat (or Ramgurh) to the Amanara ghat, is less, and these points give the extent of the table land at Umurkuntuk.

The spring at and about which the temples are built, is by no means the highest spot of the plateau, but I conjecture that where the Koond (which is a pukka irregular square basin, with steps leading down on every side) is, it was found that a spring ran all the year round, whereas from the upper points they generally dried up, as they nearly were when we visited the spot. The Brahmins have also added legends to these sources; that from the east is termed the Sonbhudr, and that from the north the Johilla, and you are gravely assured by these priests that the streams are running up the hill, to protect themselves from the fury of Nermada Mae. At the place are some 60 temples of sizes; that in which the image of Johilla the Nain (said to be iron, of which I have strong doubts) is a picturesque one, and so is another adjoining, of a totally different style to the generality, but in miniature like those built at Oodeypore and Putharee in Scindea's country; the whole of them are built of laterite with which the table land is capped. Of its height above the level of the sea, Mr. Jenkins the Resident of Nagpore in his report of that country states it at 3464 feet; but Lieut. Waugh and Rennie, who visited it in 1833 en route from Chunar to Jubulpore, I understand make it near 5000 There is a peculiarity of this elevation, which I may notice here; viz. that we were assured by the residents of the place that it rains throughout the year every third or fourth day. I have only to say that in two visits made to it, that such was undoubtedly the case as far as our observation went; now allowing its height to be that stated by the engineer officers, on what principle is this humidity to be accounted for? The peaks of the Mahadeo hills, Chowradeo, Jutta Shunkur, Dobghur rising out of the plain of Puchmurree, have an equal altitude, and nothing of the kind occurs there. Has the geological formation any thing to say to this meteorological difference? The Mahadeo hills are sandstone with rolled quartz pebbles, Umurkuntuk entirely laterite resting on basalt. A register of a thermometer kept by a native in an open verandah of a temple, from the 12th of April to the 24th June gave the following results; unfortunately no attempt was made to note the prevailing winds, clouds or rain.

The Min of 18 days of April gave 58 and the Max 90—med. 74.
Ditto all May „ 62 ditto ditto 94—med. 78.
Ditto 24 days June „ 71 ditto ditto 95—med. 83.

Near the temple in which is the goddess of this river, is a Beejuck, but so defaced and broken that little of it could be decyphered by the most zealous antiquary; on the floor of an open temple is a small image, which the pundits assured me was that of Rewa Naick, a Bunjara, to whom the goddess appeared in a dream, and directed him to clear the site of the present Koond, then a dense mass of bamboo jungle; the date Sumbut 922[*] is very plain, and is within ten years of the period of the copper plate dug up at Koombhee, and forwarded by me (Asiatic Journal, for 1839). The animals met with on the Mekul hills are wild buffaloes, Gour, Sciurus Elphinstonii, Buceros Malabaricus, and on the table land of Umurkuntuk the solitary snipe, none of which are generally found in the valley of the Nerbudda east of Mundlah. I shall now proceed with the notes of the march into the Sohagpoor plains.

Hurree Tola, nine and a quarter miles. The road from the Koond at Umurkuntuk lies in a northerly direction, crossing a ridge of jungle and grass into a small valley, in which flows the Burat nulla, and at six miles is the crest of the ghat called the Punkhee ghat; it is long, but no where steep or difficult, the whole formation laterite, resting on basalt. On reaching the bottom you are in an extensive grass plain, with peaks of the Mekul Hills rising in the distance; the village a few huts, with the Johilla river flowing through the plain at the distance of a mile. The jungle on this side of the hills is not near so dense, or the trees so large, as on the Jogee ghat side; the sal trees fewer and smaller.

To Lukhora, thirteen miles. This distance is of one uniform feature, an extensive undulated grass plain, intersected by streams and springs in every direction, with the Johilla flowing through it, into which all the others run. The soil laterite, and all the beds of the nullas compact basalt.

Pureye, fourteen miles. The first 7 miles the country of the same nature as that on descending from the table land, if any thing rather more undulated; about seven and a half miles cross the Johilla, a fine stream, the bed is basalt mixed with some limestone No. 91. At Bouraha village about 9, the grassy plain may be said to terminate, as the road now becomes a constant series of bad stony ascents and descents of trap boulders, dense tree and grass jungle; at thirteen and a half the Backan nulla is passed, its bed of compact basalt, and lying about boulders of indurated green clay No. 92, and shell breccia No. 93, 94; about 50 or 60 yards to the right the nulla passed over a ledge of some 40 or 50 feet, the sides of which had hexagonal basaltic columns; from this nulla to camp the whole distance was strewed with the shell breccia in indurated clay No. 95, 96. The village small, and a dirty looking tank; it is situated immediately on the verge of the range.

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[*] I enclose a transcript made by Captain Wheatly and myself, the explanation given by a pundit afterwards by no means agreeing with the oral communication on the spot.

Kyrrha, seven miles. The ghat commences on passing the tank, and is a very bad, steep, stony descent for about a mile, all large trap boulders, mixed with some travertin No. 97, after which the real difficulty of the ghatee is passed; then follows an inclined plane all limestone No. 98, and a descent of the same formation, when the level plain is attained; from the tank to this is about 3 miles, the road good, strewed with boulders of shell breccia No. 99; cross the Bysaha nulla, sandstone No. 100, and the bed of the next, the Bygun, was limestone No. 101 ; the village of Kyrrha is on a sandstone eminence No. 102, 103, 104, 105; with No. 104, chukies (stone hand-mills) are made here.

Singpoor, six and a half miles. On leaving camp the Surpa nulla is crossed, the bed of which is a white very friable sandstone, the road good, some trifling nullas passed, all sandstone similar to that of the Surpa. In one or two places trap was seen overlying the sandstone; shortly before getting to our ground, the sandstone deepens much in colour, specimens No. 105, 106 being reddish. At this village are seen some fine sculpture brought, we were told, from Urjollee, a kos or two distant; the temple from which they were procured must have been a magnificent one. There are the remains of an old palace here, the pillars of which came from that place.

Sohagpoor, nine and a half miles. A good road the whole way, sandstone, no village seen, chiefly sal forest, but never very thick or the trees large, as you approach, more open; the fort a small ghurree, town small, but there are remains of former size and grandeur by the numerous tanks, remains of temples, buildings, &c. One old temple is finely sculptured in the style of the Oodeypoor one north of Bhilsa; adjoining is a square Koond sacred to Mahadeo, and at the distance of a quarter of a mile an eminence on which lie very extensive ruins of a temple; a large image of Boudh was almost the only distinguishable piece of sculpture left. The natives assigned the name of some Rakhshus to this giant, which I have forgotten.

Putphra nulla, eleven miles; good road, but a very uninteresting country, few villages or signs of cultivation; the soil is sandstone, beds of the Nullas as at Kyrrha No. 105; passed the shoulder of a hill trap, when the hills close in, the great Mekul range to the south, and a low range in front, and to the right water very near the surface.

Palee, ten miles. On leaving camp enter rather thick jungle, road hilly and stony, cross a ridge called Moorcha Pahar, sandstone No. 108, so named from having the appearance of an entrenchment, then hilly ground for four or five miles, when the road lies between two conical hills, Kimrae, No. 109, basalt, and so at the nulla of the same name No. 110, when the country is more open, trees chiefly sal, and some of good size. Ghooraree nulla sandstone No. 111, more compact than that at Khyrra Palee, all sandstone, and near a small tank adjoining the village there are ruins of a very large temple; the only image taken care of is that of Doorga slaying the giant Mahekhasoor, which is housed under a small hut, and from oil and attention is in fine preservation; in a westerly direction, about one and a half miles, we came to the Johilla river again, which was crossed, before above the ghat, and in its bed were traces of coal as per specimens No. 112; 113 is the sandstone forming the banks of the river. The bed, chiefly trap boulders, among which are those of syenite No. 115, large masses of a soft sandstone, with pyrites imbedded No. 116, sandstone and shale No. 117, and anthracite No. 118. On the top of the bank were boulders of shell breccia No. 119. Goohparoo 10½ miles, road good all the way; about three and a half cross the Johilla river, a considerable stream, rather stony and bad; cross the Goorchut nulla, a sandstone conglomerate No. 120, after which a dreary plain up to Goohparoo, a very conspicuous peak; the circuit (W. N. W. two or three miles) to round which, and another two marches on, causes us to make so much northing of west.

Oomureea, eight miles. The first part of this march is jungly and stony, leading over a small ridge, about the middle of which is the Putpuree nulla (limestone No. 121,) and the boundary of our and the Rewah state; some distance on large blocks of limestone rise up in very irregular shapes, which are called Baynsa Dadur, No. 122, from thence a slight descent into a plain with small conical hills of basalt as at Kerantal, No. 123; the beds of the nullas are sandstone, as at Khyrra. Rather a large stream, the Oomrar, divides the villages of Gomureea and Khulesur, all sandstone. In a small nulla about two miles off, called the Manhunha, which runs into the Oomrar, traces of coal are found, as per specimen No. 124, sandstone 125. The bed of the nulla here is called Debee Koond, slate 126, from the circumstance of some forty years ago a fire having sprung out and consumed a Semul tree, and which spot has continued at intervals of every four or five years to emit a flame; I have no doubt that some similar trick as that described by Captain Kittoe is played off by the Bramins on discovering that the stone would burn.

Koureea, thirteen and a half miles. The road for the first four miles is hilly and stony, thin jungle, all sandstone, then an open cultivated plain up to some low hills of primitive formation, syenite No. 127, 128; cross the Nursaha nulla, the bed of which is granite No. 129, 130, winding through low hills round the shoulder of a small hill at the Sunreha nulla which and the bed are sandstone No. 131; soon after cross the Muchrar nulla (?) No. 132, and pass between two conspicuous conical hills of trap to the Kirchola nulla, to the right or north of which is a Koond, where an annual fair is held; it derives its sanctity from the austerities practised by Purutkal, a son of Brahma. In days of yore the village is said to have been a very considerable one. Our ground was distant about a mile, on a sandstone eminence, with a large tank, the village a good sized one; this and the last march both in the Rewah territory.

About two miles in a northerly direction crossing a ridge of— ? No. 133; there is an extremely picturesque cascade of the Muchrar nulla over a sandstone rock, with veins on the upper part of indurated clay, as per specimens No. 134, 135, 136, 137.

Khuntera, near the Mahanuddee river, eight miles. The course of this march lay considerably to the south of west, as at Koureea a very conspicuous peak called Bhangraj is rounded, road good, and chiefly through cultivation; about six miles crossed the Mahanuddee a considerable river, its banks are sandstone No. 138, and its bed rolled boulders of trap. The soil was decomposed trap, and the small hills about the same.

Dheemurkherie, thirteen miles. The road on passing Khuntera lies through jungle not very thick, and chiefly between two low ranges, the formation of which is limestone No. 139. The Kirha nulla is crossed three or four times, after which a ridge of the hills called Chiracbhar is passed over, of the same formation, and so continues up to the Kukraha nulla. From thence the road is fine cultivated plain of black soil, with trap hills about; Khoombhee about nine miles. Road through fine cultivated land, with large villages up to the ravines, and small hills on the banks of the Heron which are laterite; at this point terminates my notes on the marches.

Before concluding, I may make some general remarks on the geological features of the Mekul hills, three sides of which we had an opportunity of examining.

On passing along the south face, after descending the Rajadhar ghat, we find that limestone is the predominant rock, all the beds of the nullas and the lower part of the range up to Kuttame being so, and from thence to the foot of the Jogee ghat, granite, syenite, and gneiss, characterized also by an extreme dense forest jungle, the trees of which, especially sal, are many of them magnificent. On the other, or northern face, with exception of some limestone at the last descent of the Purey ghat, the prevailing rock of the Sohagpoor plains is sandstone, some trap occasionally shewing itself in beds of nullas, and small conical hills rising out of the plain. The jungle on this side is never dense, and the trees comparatively stunted. The upper part of the range is uniformly basalt, capped with laterite; a good view is afforded at the eastern point of the bluff rock at Umurkuntuk overlooking the country towards Ruttunpoor, and again at the fall of Kupildhar, where the Nerbudda cuts through the laterite, exposing the compact basalt.

Fossil shells were found under Patungurh, east of the Mohtura ghat, and just above the Purey ghat.

In addition to the traces of coal noted in the route as found in the bed of the Johilla river near Palee, and in a small nulla near Khulesar Omarcea of Rewah, Mr. Fraser had intelligence from natives of coal being found across the Soan in two small nullas called the Hewye and Buroona nullas, near the village of Sonhegaon in Sohagpoor district, specimens of which accompany the present series.

In conclusion, I beg to forward the route from Umurkuntuk to Jubulpore, as received from Lieutenants Waugh and Rennie, who in 1833 came across the country from Chunar to this.

	M.	F.		
Kurrunjeeah, ...	9	0	Nulla,	Bad ghat, road good, village small.
Kudjurwar, ...	8	1	Tank,	Road good, village fair.
Kunjunpoor, ...	12	6	Nulla,	Road bad.
Jhilmilla, ...	7	0	Ditto,	Road fair, stony.
Beedaipoor, ...	12	3	Ditto,	Ditto.
Saipoor, ...	8	0	Tank,	A ghat, village pretty fair or large.
Oodhar nulla, ..	9	0	Nulla.	Road fair, village small.
Burgaon, ...	10	0	Ditto,	Road bad, village fair.
Shaipoora, ...	3	6	Tank,	Road good, large village (a tacoor.)
Serwae on the Mahanuddee,	11	3	Stream,	Road not good, village small.
Koondum, ...	12	0	Tank,	Road good (from this tank rises the Heron)
Unyher, ...	16	4	Well,	Road very good, village small.
Jubulpoor, ...	12	0		Road good.
Total,	132	2		

JUBULPORE, *5th October*, 1840.

NOTE.—The inscription copied by Dr. Spilsbury is not of consequence, being, it would appear, a mere record of the name of the decorator of the place, a private person. I have not published a translation of it, as my Pundit was by no means confident of his rendering, the original not being correct.

Notice of Amulets in use by the Trans-Himalayan Boodhists.—By W. E. Carte, Esq.

Note.—The kindness of W. E. Carte, Esq. (Surgeon 69th Regiment N. I.) enables me to lay before my readers the accompanying lithographs, with a note of explanation by our Librarian. Mr. Carte's ingenious interpretation of the effigies on the scrolls, was necessarily limited by his not having the means of interpreting the writing which accompanied them: I have therefore omitted it. I owe to his contribution a singular discovery connected with the rings, to which Mr. Carte alludes. The reference made by him, induced me to examine them more closely with reference to their relation to emblems in use with Tartar nations, and the result goes I think to establish fair grounds for believing that they are no other than specimens of an ancient Chinese currency, brought doubtless by the Boodhist pilgrims from China into Afghanistan. I hope to submit a further paper shortly on the gems and antiques from the late Capt. Conelly's collection, when I shall be able to state my impressions more at length.

"*Almora, 31st August*, 1840.

"The accompanying scrolls were obtained by me at Rampoor (near Kotghur) in 1838, from some of the nomadic Tartars who visit that place for the purpose of traffic. The scrolls were enclosed in small copper cylindrical cases, with rings attached, and by means of a string worn round the neck, perhaps as amulets. I have in vain endeavoured to have the printed, or written parts, decyphered. The Brahmins at this place avre, that they are in the Sanscrit language, though Tibetan character; and as Boodic mysteries, were regarded by them with so much superstitious aversion, not to say horror, that they would not assist in expounding such heterodox symbols.

"I am now induced to forward them to you, from the similarity which some of the figures delineated in them bear to those on the copper ring, described in No. 14, Plate 2, Fig. 17, of the Journal Asiatic Society, as you will I think immediately perceive on comparison. The hand in Fig. 10, Plate 1, is also conspicuous, and perhaps further coincidences may occur to a more experienced eye than mine."

Remarks on the above. By Csoma de Koros, *Esq. Librarian to the Asiatic Society.*

With reference to the two scrolls which were sent to you from Almora, and which you had left with me, together with a letter from Mr. W. E. Carte, on the 17th ultimo, I beg leave to inform you that both contain abstracts of some larger Tántrika works, or religious treatises, in Tibetan, interspersed with mantras in Sanscrit. The first paper, eight feet five inches long, of which the figures take two feet five inches, and the text six feet, contains 244 lines (two and a half inches long each) in printed Tibetan character. I cannot exactly tell you what the figures may represent, but I think the first is the regent, or ruler of the year, figured by a victorious king. The second is a tortoise, with nine spots on the belly, representing the lucky and unlucky periods, accordingly as the moon is affected by the planets and constellations, during her daily progress in her path. Then come the twelve animals, after which the years of the cycle of twelve years are called, opposite one to another, thus: the rat or mouse and ox; tiger and hare; dragon and serpent; horse and sheep, or ram; ape and bird; the dog and hog. Then the amphora and pices, for the twelve zodiacal signs;—signs of four planets, as the sun and moon, for all the rest. Then representations of the four, eight, and ten corners of the world. A king, his minister, horse, elephant, soldier, sun, moon, eye, ass, &c. Afterwards, from the head of a bird downwards, in two lines, there are Chinese symbolical figures, or characters, having perhaps the same meaning as the figures above designed. These symbolical characters were used 200 years before Jesus Christ, under the Han dynasty; the Tibetans now also use them on large square seals.

There are on this paper five different abridged Tántrika works, or sútras, under distinct titles, the Sanscrit being generally erroneously written.

1. Contents of the first sútra. The salutation, only in Sanscrit, thus: *Namo Shri Kalachakrayé* (which should be thus: *Namas Shrí Kālachakraya*. English: "Salutation to the circle of Time." The year, month, day, and hour, are figured by a prince, minister, soldier, and weapon. All the regents of the year, month, day, and hour; those of the planets, constellations, stars, Nagas, and imps are requested to look on these symbolical figures, and be favourable to the person who

wears or carries with him these symbols and mystical prayers, that he may succeed in every undertaking. Many particular businesses or works (religious, sacrificial, civil, and economical) are here enumerated, and all classes of divinity are requested not to hinder him in any of his occupations, but to assist him, that he may increase in prosperity, and see all his works accomplished. Here also occur some mantras; that, at the end being thus: *Om! Supratis'ht'ha Vajrayé-Swáhá, Mangalam.*

2. The second work contains in Sanscrit, short addresses to Shákya Muni, to Vágíshwárí, to Manipadmé, to Vajra Páni, and to Vajra Guru, Padma Siddhi.

3. The third contains one sloka and a half, in Tibetan, with a mystical formula in Sanscrit, on the melodious recital of the several attributes of Manju Shri, (in Tibetan, Jám-pál) the god of wisdom.—It is pretended that this short sútra, taught by Shákya himself, and buried under ground in the country of Lho-brag, in Tibet, by Padma Sambhava in the 9th century after Jesus Christ, was taken out and divulged by Guru Chos-kyi d,Vang phyug.

4. This is called the venerable sútra, dispelling the darkness of the ten corners of the world. The salutation is especially addressed to Jám-pál (Manju Shri, in Sans.) and to the ten Buddhas in the ten corners of the world. In each of the ten corners of the world (four cardinal, four intermediate, the Zenith and Nadir) fancifully is named a Buddha province, with a fancied Buddha in it. To each of them successively is addressed a set form of salutation, with a short request, thus: "If I go towards that corner, after having obtained my aim, grant that I may quickly return home." Again a request to those Buddhas, that he who carries with him this sútra, may obtain, together with his family, similar blessings to those granted to a handsome faced youth by Shákya, when he first taught him this sútra. Then follow some mantras. Lastly, is stated by whom, and in what part of Tibet this sútra, was found, and taken out from under-ground.

5. This is styled the "Sútra of eight lights." The salutation is addressed to Buddha, religion,* and holy priests, &c. There are several mantras, or physical formulæ in Sanscrit, to avert any unlucky year, month, day, and hour, the influence of any malignant planet or star. Other mantras for preventing any unlucky accident before and

after noon. Then follow several other mystical prayers for averting any evil or calamity, intended by Tshangs-pa (Sans. Brahmá) by the great god (Sans. Mahá Déva). Then follows a prayer, that by the repetition of the mantras all evil spirits may be driven away, all hostile troops defeated, and that every wish may be accomplished. Statement of the place where this Sútra was found under the ground. The conclusion is with this mantra: "*Om! Vajra Chan'da Mahá Roshana Húm, Phat. Namas Chan'da Vajra Krodháya, Hulu Hulu, Tishtha Tishtha, Bandha Bandha, Hana Hana, Armati Húm, Phat, Mangalm.*"

The second paper (four feet eight inches long, together with the figures of the twelve animals, after which the years in the cycle of twelve years are denominated) contains, in 121 lines three inches long each, a manuscript copy of the two last numbers of the former paper, also a rough sketch of the nine spots on the belly of a tortoise, in a square; and afterwards, successively downwards, the figures of the twelve animals of the cycle of twelve years. The writing may easily be read, but the orthography is bad, and the Sanscrit titles and mantras have been erroneously transcribed.

This is the sum of the general contents of the two scrolls worn by the Tibetans as amulets for obtaining the favour of particular divinities, and for averting all kinds of evil spirits.

Report on the Country between Kurrachee, Tatta, and Sehwan, Scinde.

By Capt. E. P. De la Hoste, *Assistant Quarter-Master General.*

This portion of Scinde contains a space of 6,934 square miles; the position of the above places being as follows—

	Latitude.	*Longitude.*
Kurrachee,	24° 47′ 17″	67° 0′ 51″
Tatta,	24° 45′ 0″	67° 59′ 0″
Sehwan,	26° 22′ 0″	68° 7′ 52″

Soil and Inhabitants.

The soil may be considered as generally light clay, although in some places there is a good deal of sand, and in others sandstones and pebbles, mixed with the soil. The former is in general the formation of the lower parts, whilst of the latter, the hilly tracts are composed. Where irrigated and manured, this soil is very productive, but except in the vicinity of the river Indus there is little or no cultivation in the whole of the country under description. Indeed, with exception of the large towns above mentioned, and those permanent villages along the right bank of the Indus from Tatta to Sehwan, with Gharra and Gooja, there are no fixed villages within the limits; the inhabitants are consequently few, and are chiefly employed in tending large flocks of sheep and goats, camels, and buffaloes, in which their wealth consists. Their habitations are as rude as their appearance, being composed of a kind of matting or tattie, made from a reed called *puk* or punkah; these resemble the huts seen in many parts of India, in the outskirts of villages, in which Wanggries and Kolatnees reside ; the reed there is called *soilkee;* when properly made their tatties keep out the rain and dust in a wonderful manner. The puk or punkah used in Scinde is of a much larger size, and of a dark brown colour; it is easily rolled up when the shepherds require to move, which they do according as the grass and water become expended. These people, (it will be remembered I speak of the wandering tribes,) are Belooches, Jokias, and Soomries.

The Belooches occupy a portion of the country which would be described by a line being drawn from the end of the Jutteel Hills to Tatta. The Jokias, the country between Tatta and Kurrachee. And the Soomries the remaining part of the district.

The former are insolent and thievishly inclined, being *Scindian* Belooches, and patronised by the rulers of the country.

The Jokias are well disposed; and the Soomries a quiet, inoffensive race, in this part of the country, whatever they may be elsewhere.

From the inquiries I have instituted, I do not believe that the amount of population in this part of Scinde (the large permanent villages and towns not included) exceeds 5 or 6000. Their food is chiefly meat; grain is little used, a substitute is found for it by drying and pounding a berry called *beir*, which is mixed with water, and packed away in pots; this with sour milk as a beverage, is what they exist on. They derive some profit from the coarse nummuds made from the wool of their goats and sheep; as also, since our arrival, from the quantity of the puk tattas* and mats that have been disposed of by them.

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* These Tattas are not made by the Soomries, but by the Seks and Lubannas.—E.P.D.

Revenue. The Revenue derived from this part of Scinde by the Ameers is realised chiefly at Kurrachee, which alone pays yearly one lac of Rupees, out of which the following sums are paid—

Saduk Shah Newaub, ...	180	0	0
14 Beloochee (Jukia) Sepoys, ...	100	0	0
4 Golundauze, ...	20	0	0
1 Jemedar and 20 Sepoys, ...	120	0	0
Naqua Jemadar of Kelafsees, ...	17	0	0
Alla Rukka Jemadar, ...	35	0	0
Tukchund, ...	35	0	0
Abbasali Shaw, ...	25	0	0
Kurrumchund, ...	37	0	0
2 Moonshees, ...	24	0	0
Inferior Ditto, ...	5	0	0
2 Peons for collecting taxes on the Mahamios (fishermen)	16	0	0
Writers and Sepoys for the Port	19	0	0
2 Durwans (door-keepers at Mitta and Kara Gates,)	11	0	0
2 Attendants at principal Police station, ...	7	0	0
Peon over Moochees, ...	4	0	0
Paymaster (Receiver)	7	8	0
Stationary, ...	7	8	0
Oil, ...	2	8	0
3 Syyuds, Pensioners, ...	24	8	0
12 ×	724	8	0
Annual Expenditure, ...	8,694	0	0
Expenses allowed annually in Fort Munoora, formerly,	1,344	0	0
Sepoys (20) at 5 Rupees, 100			
Water for above, 12			
112 + 12			
	10,038	0	0
Annual Gift to Muggar Peer, ...	107	0	0
	10,145	0	0

The amount thus realised from Kurrachee is the produce of the land and sea customs, there being little or no revenue derived from the soil.

I can form no idea here of what the revenue of Tatta and Sehwan may be; the tax on the "Mahamios," or fishermen on the Indus, is a considerable source of wealth to the rulers of the country.*

Rivers

The only Rivers of any note in this tract are the Hubb, (which rises near Zehrey, and enters the sea, west of Cape Monge) and the Barran; the others, consisting of the Mulleere Hurchee, Leaeer, Kowranee, Rooah, Peepree, Goorban, Murraie, Pokun, Warkees, Kayjooree, and Doombeh, are all mountain streams, dry the greater part of the year, but water always found by digging a few feet in their beds. I am led to believe that a sufficient quantity might be readily obtained (by excavating large pools in the rivers) for irrigation, were the excessive taxation abolished, and greater protection afforded the cultivators. This is a matter of serious consideration on the route from hence to Sehwan direct, as the great difficulty now to be overcome, is the want of supplies on the line of route. In the Pokun Kayjooree, or Doobee (the same rivers, only at different points, so called from halting places) water would not be found probably without great labour, but were holes or pits made, the water would remain in them. Their beds are rocky, the others sandy.

Hubb.

The Hubb has been traced from the Pubb hill to the sea, a distance of fourteen and a half miles, throughout which a depth of water of eight inches in the month of September was found, and in some places deep pools, abounding with fish and alligators. The river is said never to fall even in the driest seasons, and is the chief resort of the Soomries and Belooches. This does not appear to be the description of a *fine river*, but in this part of Scinde a running stream (except after rain) is seldom met with.

The Hubb enters the sea west of Cape Monge (Mooaree) and between it and the island of Churna or Churn. It rises near Zehrie, and has been traced from near Hoja Jamote, in the route to which place a description of it is given.

Barran.

The Barran rises in a mountain called Kirter, north-west of Humlanee thirty coss, and joins the Indus two and a half furlongs south of Kotree; for one mile from its junction with the great river it contains a good deal of water. It is laid down on the route from Kurrachee to Hyderabad direct.

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* In preparation—E.P.D.

The streams are frequently called after the tribes that are in the habit of residing on their banks, and indeed the villages or camps also derive their names from the same source; "Hoja Jamote," "Hoja," the chief of that party, and "Jamote," the name of the tribe, "Shah tra Gote," "Muhumud Khan ke Tando," are of this derivation.

Hills are numerous in the northern and north-east portion of this Hills. tract, and it will be easy to trace them by reference to the map. The ranges are—

1. The nearest to Kurrachee, ending in Cape Monge.
2. The Pubb range, of which that mountain is the highest point.
3. The Sahkan Hill; the Morethe; and Har More Pubb.
4. Jutteel Lukki, Karra, and a number of other detached hills, which bear the names given them in the map. It will be seen that the Lukki mountains do not hold the place assigned them in most of the maps. They run from the Jutteel range nearly south-west towards Hyderabad, and from the Lukki pass (the town of Lukki near the pass probably, gives it the name of Lukki) by projecting into the Indus. This pass is now nearly destroyed by the force of the current of the river, and probably next year will not exist. In these hills hot springs are found, also alum and sulphur. The fort of Runnei, which I shall have occasion to describe hereafter, is situated hereabouts.

The Jutteel run nearly south-west from Sehwan, are very lofty and Jutteel. steep; they extend to Dooba, or Domba, sixty-six miles, and the road direct from Kurrachee to Sehwan runs between them and another range, equally high.

It may be said that the tract of country from Soameanee to Sehwan, and from thence to Kurrachee, contains scarcely any thing but hills and mountain streams. Lead, antimony, alum, sulphur, and copper, are found in these hills.

The forts are Munoora, Runnie, near the Indus; Bamboor, near Forts. Gharra, Killa Kote, near Tatta; the old castle called Kaffer Killa, near Sehwan.

Munoora will be found described in the report by Captain Harris Munoora. and myself on Kurrachee.

Runnie ka Kote is situated two and a half coss from Sunn, a town of about 100 houses, on the right bank of the Indus. It was built by Meer Kurrum Ali, and his brother Meer Morad Ali twenty-seven years ago, cost twelve lacs of rupees, and *has never been inhabited* in consequence of there being a scarcity of water in and near it. That so large a fort should have been constructed without its having been ascertained beforehand that an article so indispensably requisite, not only for the use of man, but even for the construction of the walls, was wanting, seems most extraordinary; but I am told that this is the sole reason for its having been abandoned. A rapid stream in the rains runs past it and joins the Indus, and by a deviation from its course, part of the walls of this fort have been destroyed. The hill on the north face is the steepest, and from the intelligence I received, must be at least 800 or 1000 feet high; the opposite hill is of considerable height, and the east and west walls are built on level ground, and join those constructed on the hills; the whole is of stone and chunam, forming an irregular pentagon, and enclosing a space capable of containing 2000 men.

Runnie.

The course of the river (which I believe to be that described by me in the account of Scinde, written in 1832 as Sunn river) ran formerly round the base of the north face, but about twelve years ago it changed its course, and destroyed part of the north-west wall, the distance from that wall to the river being about 400 yards; the bed of the river (original course) is described as *rocky;* if so, nothing could be more easy than to deepen it at the point where it has taken a turn, and construct a tunnel from thence to the fort, and below the wall (which must be rebuilt on arches) an excavation made inside, to receive the water, and a supply would be secured. It is not surprising however that this idea has not occurred to those who originally built the place, without considering from whence water was to be obtained. The fort is thirty-eight coss from Kurrachee. I have a survey of the route to within twenty-seven coss of it, and shall endeavour to get a rough survey of the fort, as it might be of use as a station for our troops. The Ameers, I am told, would gladly give it up, considering it *of no value* from the cause stated.

Bambour is in the Gharra creek; it is scarcely distinguishable now, and is reported to have been the site of a *Kaffir* city and fort.

Bambour.

Killa ka Kote.

Killa ka Kote is three miles south of Tatta (built by the Newabs from Delhi, it is said.)

Kaffir Killa.

There are several traditions respecting it; I take the following account and sketch of it from my Journal, kept during the Scinde Mission, April 14, 1832.

"This evening we landed near the town of Sehwan, and after visiting a ruined Eadgah, which at a distance we mistook for the fort built by Alexander, or rather said to have been built by him, we discovered by the aid of two Scindians that the mound was north-west of the town, through a part of which we walked and ascended the fort. It is an artificial mound, eighty or ninety paces high; on the top, a space of 1500 feet by 800 surrounded by a broken wall; we examined the remains of several old towers of brick, and I took a hasty sketch of the gateway, which is remarkably lofty. The mound is evidently artificial, and the remains of several towers visible. The brickwork seems to extend to the bottom of the mound, or at any rate to a considerable depth, as we could see down the parts washed away by the rains. A well filled up, was observed. We were told that coins and medals were frequently found on and near the place, but we were not so fortunate as to obtain any."

I regret now having had so little time to devote to the examination of this fort, but think the period of its construction is not of so ancient a date as is ascribed to it.

Resources.

The resources of the country, as far as grain, cloth, &c. are concerned, are drawn from the large towns near the river, and its vicinity. Cattle, sheep, goats, and camels, are abundant in the desert tract.

Grain is brought from Tatta and Sehwan; bajary, wheat, and rice, principally brought from Larkhanna. Grass is abundant along the river, and in the hills N. E. of Kurrachee. A supply should be cut and stacked in September and October, for the Scindians merely bring in the daily supply.

Manufactures.

At Tatta—cloth, loongies, and carpets; at Sehwan, carpets, and the caps worn by the Scindians at Kurrachee. I am informed many articles of the same sort are made.

Skins and hides, raw and tanned, are exported to Arabia and Bombay. The report on Kurrachee includes this subject.

Curiosities.

The only one near Kurrachee is the Peer Munjah Musjeia, and hot springs, 9 miles N.E. of Kurrachee. The hot springs abound with alligators, and a most disgusting sight they are; there are, it is said, upwards of 200 of them, in a small space scarcely 120 yards in circumference, some very large; their appearance basking in the sun is not unlike a dried date tree. This place has been well described by Lieutenant Carloss, Indian Navy.

Climate.

The climate of Lower Scinde, out of the influence of the sea breeze, is bad during the months of August, September, October, and November; fevers are then very prevalent, and of a very dangerous and obstinate nature.. The fact of the whole of the 26th regiment having suffered from fever, (2 Officers and one Havildar only excepted), 3 European Officers, and nearly 100 men having died this season, is sufficient proof of the unhealthiness of the climate in these months, within the influence of the malaria arising from the inundated lands. Sehwan is not better I fear, for, from its situation it is equally open to miasma from the marshes S. W. of it, and the inundated country N. and N. E.; most of our people who have been there have been attacked with fever.

Kurrachee has been healthy, and the climate mild and temperate; the cold bracing, but not severe hitherto, (16th December), a point which may be of importance in fixing the site of the cantonment for the troops remaining in Scinde.

Routes.

The roads in this part of Scinde are, as in most others, mere foot paths, wheeled carriages being unknown; better are scarcely necessary. Surveys have been made of the following:—

Kurrachee to Tatta;
,, to Sehwan;
,, to Kotree;
,, to Hubb River, and along its bank to the sea;
,, to Fort Munoora by land;
,, to Hoja Jamote;
,, to Mujjah Veer;
,, to Gisiey Creek;

these have been performed by two guides, Oree Sing and Essoo Rama, and my private guide, Kenkaya Mahadavia; and a survey of our camp, and the country near it, by Capt. Boyd, who acted for me during my absence on sick certificate.

The following remarks were drawn up by me in transmitting copies of the routes to Bombay :—

The routes forwarded by this day's post, December 15th, are of considerable importance, since they shew the present state of the country on the right bank of the Indus, from Sehwan to the sea; from which it will be observed, that in a line of road extending in one instance 140 miles, and in another 96, not one single permanent village has been met with, although no scarcity of water exists; various causes are assigned for this desolation. The revenue of the country is reduced to that realized at Kurrachee, which averages one lac of Rupees.

The route from hence to Hyderabad viâ Kotree has been lately travelled by Lieutenant and Mrs. Travers, and by Lieutenant Franklin, 2nd Grenadiers, and his detachment of 60 rank and file. No difficulty has been experienced; supplies of grain and food were taken from hence; sheep, and goats are procurable on the line of route. The country is quiet, and the few people met with civil and inoffensive; water is found in the beds of the rivers by digging a few feet.

The above remarks are equally applicable to the route from hence to Sehwan, which is however of greater importance than the former, since it opens a direct communication with the interior of Scinde.

To the merchants the discovery of this route is of the greatest value, since, by pursuing it, they avoid the delay and danger of entering and tracking up the Indus to Sehwan, a journey of at least one month; which can be performed in ten days from Kurrachee. The water communication from Sehwan to Larkana, and to the Indus by the Arul and Narra, is highly advantageous, since the rapid current is avoided, which is an obstacle in the Indus.

The route from Kurrachee to Hoja Jamote, in the vicinity of Kanaraj river, has proved the existence there of lead and antimony. The information I have obtained in consequence, of the existence of copper near Beyla, is also of importance; and may hereafter be turned to account.

Boats and Boatmen.

It remains only for me to speak of the boats and boatmen, the harbour of Kurrachee having been described in a former report. The boatmen are all Mahomedans, and called Moanas. They are respectable and hardy fellows, and not of the same description as the Mohannas of Upper Scinde, and on the river. The wives of the latter are called *Koblee*, and are not remarkable for their fidelity, a point which causes their husbands to be looked down on.

The tonnage for boats on the river is calculated by a measure called Kharar,* which in the measurement of boats is equal to three Bombay candies, making the Kharar — lbs. English.

But at Kurrachee the tonnage is calculated in candies. The following measures are in use at Kurrachee. Four Chotallo, one Pattee; sixteen Pattee, one Kassa; sixty Kassa one Kharar; one Kharar, ninety Bombay maunds.

In measuring grain the Kharar varies in size, thus; bajery and wheat three and a half candies one kharar; rice, three and a three-quarter candies one kharar.

Description of Boats belonging to the harbour of Kurrachee.

Kotia.—The Kotia resembles botells used in India, it has a flat stern and round bottom, and does not fall over much, when ground.

Dinjee.—The Dinjee is sharp bowed, bottom, and stern, and must be supported by props when aground, like the pallymar used in India, excepting having a high stem or poop.

The former are heavy sailers, the latter speedy.

CAMP KURRACHEE,
December 26th, 1839.

Narrative of facts attending the Wreck of the Transport "Indian Oak" on the Loochoo Islands; communicated from the Political Secratariat Office, Government of India.

TO C. B. GREENLAW, ESQ.,
Secretary to the Marine Board, Calcutta.

SIR,

The last letter I had the honor to forward to your address, was from Singapore, dated 23rd June; on the following day I sailed for Macao in the transport "Hooghly," taking with me the transport "Clifton," as directed by His Excellency the Admiral and Commander-in-Chief; and arrived with the above ships at Macao on the 12th July, where I received further instructions to proceed with the ships under my orders to Chusan, and arrived at the latter port on the 28th July, where I joined the Admiral and fleet. His Excellency the Admiral directed me to return to Singapore, and assume the duties of Resident Agent for transports at that port; in pursuance of which, I was directed by Commodore Sir J. J. G. Bremer to join the transport "Indian Oak" for a passage to the latter place. We sailed from Chusan on the 10th of August, and on the 14th instant following, I regret to say, were wrecked on the Great Loochoo Island, in lat. 26° 21′ 46″ N., about 10 miles to the northward of the principal place, Napakiang; and longitude by the "Indian Oak's" chronometer 127° 12′ 45″ E., which now proved to have been full thirty miles too far west. For particulars, I cannot do better than refer you to the enclosed copy of a letter addressed to Commodore Sir J. J. G. Bremer, forwarded through the chief officer, Mr. Field, who succeeded in making Chusan in the launch, and returned to our relief with H. M's. ships "Nimrod" and "Cruizer" on the 16th September. As the junk mentioned in my letter to the Commodore had been built, and nearly completed, in which it was our intention to have proceeded to Singapore, Captain Barlow, senior officer, was of opinion, that she might be useful to the force at Chusan, and determined on sending the "Cruizer" back with the mails and despatches on the following day, and remain to accompany the junk. When all being completed, and the stores and crew of the "Indian Oak" embarked on the junk, I, with Mr. Payne my writer, embarked on the "Nimrod," and sailed on the 29th of September for Chusan, where H. M's. ship "Nimrod," with the junk "Loochoo," arrived on the 5th instant.

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* "Khur waw" literally.

I should not do justice to my own feelings, or to those kind Islanders, the Loochooers, were I to omit stating, and bringing to the notice of government, the very great kindness and hospitality received from the moment of our landing to the date of our departure, which was uniform from the first to the last, with the exception that we were not allowed to pass into the interior, or exceed the limits of our compound beyond the wreck; our own contrymen could not have been kinder. They not only built a vessel of 150 to 180 tons burthen, but gave us a plentiful supply of provisions during our stay of forty-six days on the island, and one month's provision for every person in the junk; they also furnished H. M's. ships with water and fresh supplies during their stay, declining to receive any thing in the shape of payment in return; stating they neither wanted gold or silver, but in the event of any of their own vessels falling on the coasts of any of our settlements in distress, that we would treat their people with the same kindness, and send them back to their country. The only return they accepted was a telescope from myself, and one presented by Captain Barlow, with twelve copies of the Saturday and Penny Magazines, a small print, and a looking glass in the name of Her Britannic Majesty.

In conclusion, I can only regret my inability to do full justice to those kind, hospitable, and good people. In my letter to Sir J. J. Gordon Bremer, I stated the latitude of the wreck to have been 26° 11′, which is wrong, and which mistake was occasioned by an error in the sextant, that I did not discover until after the departure of the long boat; the true latitude however is 26° 21′ 46″ N. both by double altitudes and altitudes of the Pole Star, all taken on a false horizon, at the village of Peekoo.

As I have kept a journal of occurrences during our stay in Loochoo, should it be requisite, I shall be able to furnish full particulars of every occurrence, winds, weather, &c., that took place until my departure in H. M's. "ship Nimrod." His Excellency the Commander-in-Chief has directed, that I should hold myself in readiness to proceed to Manilla, with two or three transports, in which sick troops are to be embarked for a change of air and fresh supplies. On receiving further instructions, I shall not fail to apprise you of my movements by the first opportunity.

H. Co's. Transport, Futty Salam, *(Signed)* J. J. R. BOWMAN,
CHUSAN HARBOUR. *Agt. for Transports, Eastern Expedition.*
19th, October, 1840.

To SIR J. J. G. BREMER, K.C.B. & K.C.H.
Commodore of the 1st Class.

SIR,

It is with sincere and deep regret, that I have to report the loss of H. M's. transport, "Indian Oak," R. Grainger, Master, on one of the Loochoo Islands, on the 14th instant, about 11 A.M. The following heads of occurrences will I hope afford you all the information I am at present able to give, on this most unfortunate event.

Monday, 10th August. Parted company with H. M's. ship "Alligator," off Keeto Point, Chusan, and passed out, between the Buffalo's Nose and the Quesan Islands.

At 9 P.M. the S. Easternmost Island, Pata-hecock, bore EbN. 4 to 5 miles, blowing a fresh breeze from the northward, steered SEbE.

Noon, Tuesday 11th.—In Lat. by Obs. 28° 26′ 17″; Long. Ch. 123° 24′ 15″ E. departure taken from Chusan said to be in 122° 6′ E. of Greenwich; at this time blowing a hard gale from NNE. with a high sea; the ship was reduced to close-reefed topsails, and topgallant yards sent down on deck. Bar. 29° 63′.

Midnight. Severe gale and high sea, Bar. 29° 50′.

Noon, Wednesday 12th.—Lat. Obs. 27° 13′ 22″ N.; Long. Ch. 124° 55′ 45″ E.; Bar. 29° 40′; ship's main rigging very slack, and in great danger of losing the main-mast; sent down the gallant mast, and swifted the rigging in. Furled the fore and mizen-topsails, and hove to under close-reefed main-topsails.

Midnight. Gale very severe from the northward, blowing in gusts, with rain and a very high sea. Bar. 29° 35′.

Noon, Thursday 13th.—Lat. Obs. 26° 29′, N.; Long. Ch. 124° 51′ E.; Bar. 29° 35′, P.M. 3, somewhat more moderate, set the fore-topsail and steered EbS.

6 P.M. Set fore-sail, and at 10 P.M. set the main-sail. Midnight strong gales and hard squalls.

Friday, 14th.—10 A.M. course per log, from noon of yesterday, allowing one point lee-way for the heave of the sea, placed the ship in as follows:—Course per log 166° 30′ E. 121 miles. Lat. D. R. 26° 51′ N.; Long. R. R. 127° 2′, from which Capt. Grainger considered himself well to the SW. of the Loochoo Group, when in the act of working up the above reckoning, discoloured water was reported by the officer of the watch, and the ship immediately hauled up SSW. the wind previously having hauled to the NW. in a very severe squall, shifted to the westward of the ship, broke off the SSE.; land and breakers were now seen on our lee quarter, extending to SSW. on our weather bow; wore ship and stood to the northward, at this time the fore-topmast staysail, fore-topsail, and foresail, were blown out of the bolt ropes; found ourselves unable to weather the north point of the Island, off which was a long extent of heavy breakers, and a very high sea running; the weather being so very thick, the land was scarcely discernible, although not more than three miles off. Finding ourselves embayed, and no possibility of saving the ship, wore with the hope of saving the lives of the crew, and stood to the southward for what appeared an opening, but which proved only a small inlet or bay, full of breakers. The heavy sea and the want of sail, setting us fast on the shore, between 10-30, and 11 A. M. struck on an extensive rocky ledge, extending about two miles from the shore, with numerous rocky patches, just a-wash. The sea now made a clean breach over the ship; she shortly after fell over on her beam-ends, and broke her back about the chess tree, the fore part falling in deep water. Cut away the main mast, and some time after the mizen mast. All hands now collected aft, under the poop, and on the weather quarter and mizen chains. On the ship's falling over, lost the larboard quarter boat which was washed on shore, by which we observed the tide to be falling.

The gale now increasing to a severe hurricane, with heavy rain, our only remaining hope was in getting a rope on shore. The first attempt to carry a line on shore was made by William Bagburn (seaman sent from the Blenham) but owing to the strong drawback, failed, and was with some risk hauled in; a second attempt with the lead line was made by a lascar, who succeeded in reaching the shore (greatly exhausted and cut by the rocks) but lost the line. About this time a number of natives came down and motioned us to land. An attempt was now made to get the jolly boat out, which was stowed on the launch, but in doing so, she was stove to pieces. Several attempts were now made with hatches, gratings, and oars, all of which failed, owing to the line fouling the rocks; two more attempts were made, by two lascars, to carry the log line on shore, one of whom succeeded, and the end of the deep sea lead line got on shore, but which also fouled the rocks, and was thereby rendered useless. The tide coming in, all the Islanders with our two men left the reef; our only remaining hope being in the strength of the ship, and the after part holding together. As the tide came in, the wind and sea increased; the latter making a complete breach over all, fore and aft, and throwing pieces of sheathing and copper over the vessel in all directions. Finding it impossible to hold on longer on the outside, all hands got under the poop, with the ship on her beam ends and deck nearly perpendicular.

As the tide came in, the sea gradually hove the vessel higher on the reef until she lodged on a small ledge of rocks. Our rudder was torn off with part of the counter shortly after striking, through which the sea rushed into the poop and lower cabins. Each sea that struck the vessel. Shook her very frame. Closely huddled together under the poop, were the commander, officers, passengers, and crew, drenched by every sea, and shivering with cold, most of us having thrown off all clothes, as it was likely to impede swimming. We remained in this state until about ½ past 11 P.M, when the tide having receded, and the weather considerably moderated, we found ourselves much nearer the shore, and comparatively smooth under the lee. Sounded on the lee side, and found only from five to six feet water; immediately piped all hands on shore, the mizen mast, yards, and gaff forming a raft. All hands got on shore, including the sick, in safety, with exception of a few cuts and bruises from the rocks. All the crew and passengers having got on shore, myself, the commander and officers followed, and after walking about a mile over a rocky ledge, towards some lights at high water mark, were met by a party of the Islanders, and greeted with kind hospitality, hot tea and rice being served out to every man. Nothing can show their hospitality in a stronger light than the following:—I had nothing on but a shirt and drawers, drenched to the skin; one of the principal men noticing my situation, took off his outer jacket or coat, and insisted on my putting it on. After resting on the beach a short time, we were conducted to a comfortable dwelling, or court house, where dry clothing was given to all who stood in need, and we were again regaled with warm tea, rice, eggs, and fowls. Words are not adequate to express the kindness, attention, and hospitality we have received from the first moment of landing to the present time, from these kind and good people; their honesty is beyond praise,—articles of silver, gold, and wearing apparel strewed in every direction to dry, but not an article touched.

Most of our wearing apparel has been saved, but all more or less damaged from being drenched for several days in the sea. Several dozens of the Commander's wine and beer have also been saved, but I regret to say little of the ship's provisions. We are entirely dependant on these good people, who have up to the present time supplied us abundantly.

For all further particulars, I refer you to the bearer, Mr. Field, first officer of the late ship "Indian Oak," whose conduct throughout this trying occasion has been most meritorious; and in nothing more so, than at present, in volunteering to proceed in the launch to Chusan, as the bearer of intelligence most unfortunate, and I fear of serious disappointment and loss to the expedition generally, which no one can feel more than myself. I can give you no description of the place, as we are not allowed to go beyond the limits of our dwelling, except to the wreck.

From altitudes taken in a false horizon for the Chronometer, and several altitudes of the Pole Star, I make the geographical position of our dwelling, about two miles east of the wreck, as follows:—

By a meridian altitude of the sun from the wreck, about 1¼ miles horizon, ...	26° 11′ 34″ N.
By several altitudes of the Pole Star taken in an artificial horizon, ...	26° 11′ 22″ ,,
Long. by Chronometer, ...	127° 12′ 45″ E.

from which I conclude we are on one of the small Islands to the westward of the Great Loochoo; but the natives whenever questioned, say we are on the larger Island, but jealous of our gaining any knowledge of their Island, invariably evade the question; they however have promised to build a vessel to take us to Singapore, of the following dimensions, which they say shall be ready in two months, viz. 65 feet long, 23 ditto broad, 7½ ditto hold.

I trust however Mr. Field will succeed in reaching Chusan in safety, from whence I feel assured speedy relief will be sent, with this hope, and full confidence in a good God,

I am, &c.

LOOCHOO ISLANDS,
28th August, 1840.

(*Signed*) J. J. R. BOWMAN,
Agent for Transports, Eeastern Expedition.

P.S.—Since writing the above, I have been assured by one of the principal men, that we are on the Great Loochoo; this from what I can see of the land from the wreck, is my opinion, also; judging from Captain Hall's description of Napaking Harbour, the wreck lays a little to the southward of Abbey Point, in the above place. If I am right, and what the islanders state is correct, the longitude shown by the "Indian Oak's" chronometer, must be twenty-five miles too far west. I have had no opportunity of getting a lunar as yet, but shall endeavour to do so by the first opportunity. I have also to add, that every circumstance relating to Chusan and the fleet, has been kept a secret from the Islanders, fearing it might operate against us, as they are tributary to China, and now fitting out two junks for Amoy. I trust however we shall be relieved from our present painful situation before these or other vessels return. Mr. Field, the bearer, I hope leaves to-morrow. I have the pleasure to state the dispatches and letters are saved, but more or less wet with sea-water.

(Signed) J. J. R. B.

Note.—I lose no time in publishing the above interesting narrative. The natives of the Loochoo Islands seem to preserve unimpared the kindness of disposition, which distinguished them when Basil Hall visited that distant archipelago, although some greater degree of caution and strictness as respects intercourse with the interior, on the part of foreigners, seems now to obtain among them, than was the case when Englishmen first became intimately acquainted with them. Of Captain Beechey's subsequent visit, there exists I believe no published account; and although Mr. Tradescant Lay, the naturalist, who accompanied that officer, has published a notice of the Bonin Islands, he has not included (I speak from memory) in his work any detailed mention of the Loochoooans. A narrative of the Russian Captain Creusensturn's voyage to Loochoo has I believe appeared on the continent, but I have never seen the book. The accidental sojourn of Captain Bowman and his party among these kindly islanders, is an occurrence of much interest; and it is to be hoped that no Englishman will ever abuse their hospitality, nor fail to requite it, when the occasion may offer of returning it in kind.

Notes on the Eusofzye tribes of Afghanistan. By the late Capt. EDWARD CONOLLY.

The country of the Eusofzyes[1] is naturally, and by themselves, divided into the Sum, (a Pushtoo word signifying a plain) and the Kohistan or hilly districts, comprising the valleys of Chumla, Booncer, Swat, &c. and the physical characteristics of the two divisions are hardly more opposed to each other, than are the manners and condition of their respective inhabitants. The present memoir will treat chiefly of the Sum, with a few exceptions (to be hereafter mentioned); the whole of this tract is peopled by that great branch of the Eusofzyes, called the Munder.[2] Scattered over a perfectly level plain, every where practicable for guns, in villages which mutual jealousy prevents them from fortifying even with walls, the Munders have always been exposed to the inroad of foreign invaders, and seem in consequence to have early sought the protection of, and willingly to have submitted to, some one chief of their own clan; though their peculiar democratic institutions prevented their acknowledging obedience to any minor authority, if we except that capricious and limited deference which custom has accorded to the petty Mulliks. The Mullikzyes, a powerful and numerous tribe, whose principal seat is Yar Hossein, the largest village in the Sum, are said formerly to have given a Khan to the Munders;[3] but the chieftainship has been in the family of Punjtar since the days of Aurungzebe, whose letters patent it still possesses. Though in the confusion consequent on the dismemberment of the monarchy, several chiefs have risen to limited authority in the Sum, all of them acknowledge as their rightful head—if they have ceased to pay obedience to the descendants of—Bagho Khan, the founder of that family, and these alone possess the power of life and death, the Beri Kheil (that of Bagho) being regarded with a respect hardly inferior to that paid by the Dauranees to their Sudozyes.[4]

Futteh Khan, sixth in descent from Bagho, died a few days before I left Peshawer. The high character he supported during a period of peculiar difficulty, and the light which his history throws on the present condition of the Eusofzyes, require that a slight sketch of his career should be given. It was during the short, but brilliant reign of Syud Ahmed,[5] whose principal supporter he was, and to whom he may be said to have given the crown, that Futteh Khan obtained his greatest power; not only the Munders, but the Eusofs of Swat and Booneer seem to have acknowledged him as their head and leader at this period, but on the defeat and death of the Syud Badshah, the consequence of Futteh Khan became daily less and less. The Sikhs flushed with victory, poured large armies and large treasures into the plain, and by bribing some, and intimidating others, contrived, if they could not get possession of the country, to weaken it by exciting jealousies and divisions among the petty tribes, and by substituting numerous small lordships in the place of one common interest. The people of the hills, particularly those of Booneer, who had been the principal supporters of the Sum against its foreign enemies, disheartened by their losses at Noushera,[6] contented themselves with brooding over their disgrace, and rarely ventured to leave their fastnesses; and it seemed likely that, in spite of the difficulties opposed by the differences of their religions, the disunited Munders would shortly fall an easy prey to the victorious and one-minded Sikhs. One man alone prevented this. As his physical resources and apparent means of resistance grew less, the courage, the moral influence, and it may almost be said, the actual strength of Futteh Khan increased. Punjtar is a cluster of five small villages, not containing altogether 500 houses, situated at the upper extremity of a valley, which opens into the Sum. It is a place of no strength whatever, not even being surrounded by a wall, and the road to it is open and practicable for guns; but such was the terror inspired by the name of its chief, that for many years it remained the bugbear of the Sikhs, and their largest armies never ventured to approach it. At last a force of, it is said, 15,000 men with guns, and under an European officer, ascended the valley. The inhabitants were amused with proposals for an accommodation, and during the night, guns having secretly been conveyed to the top of a hill which commands the place, an attack was made on the unfortified little villages. Of the few Punjtaris thus taken by surprize, the greater number hastened to place their families out of reach of the fury of the Sikhs; but all those not encumbered with wives and children, some 2 or 300 only, with Futteh Khan and the Moullas at their head, unappalled by the overpowering masses of the enemy, made a stand, and maintained an unequal fight for many hours. Futteh Khan himself swore not to retreat, and was at last carried off the field by force in the arms of his soldiers. The Sikhs destroyed the principal village and mosque, but retreated the next day, lest the Booneeris should be down upon them; nor have they since revisited Punjtar. Futteh Khan made a vow to pray in the open air till he had burned some house of images, and shortly afterwards with a few followers, in pursuance of his vow, he crossed the river, attacked a Sikh town, and levelled its Dhurmsalla with the ground.

Runjeit Singh was fully aware of the importance of conciliating an enemy so spirited and implacable. He offered Futteh Khan a jageer of three lacs, and to support him as Khan of all the Eusofzyes, if he would only nominally acknowledge himself his subject, by sending him a hawk or two, or a horse as a tribute. Most of the Khan's friends, and even the Moullas recommended not that he should degrade himself into a pensioner of the infidel, but that he should send a horse to the Maharaja as an exemption from the annoyances and anxieties to which the vicinity of the Sikh troops exposed them; but the Khan was inflexible: with his character, he would have lost his power. "Horses and hawks," he wrote back, "are to be found with rich nobles at the courts of kings; I a poor Zemindar have nothing of the kind, but I can send you a fat cow if you please."

Futteh Khan left several childern, but the three eldest (who are by one mother) alone claim notice.

The first, Mokurrib Khan, the present chief, will be described in another place. He was on bad terms with his father, and for eight years before the death of the latter had lived apart from him.

The second, Alum Khan, is a good looking, well disposed, intelligent lad, under twenty years of age, and was the favourite of his father, who, a little before his death, sounded his friends as to the possibility of setting aside in his favour the claims of Mokurrib Khan to the succession. He was checked by the honest bluntness of his Cazi, who exclaimed before them all, "Death to your house!—would you murder both your children?"

The history of the third son, Mudduh Khan, gives a curious picture of the state of society among the Eusofzyes. He is now about fourteen years old; at the age of eleven he drew his sword on his tutor, who had struck him, and ran away from his father's house, to which he could never be induced to come back. He found refuge with Mokurrib Khan, who resided independent of Futteh Khan in a fort some eight miles from Punjtar, and having (in the manner related of Nadir Shah,) formed into a band several children of his own age, he carried on a sort of war with his father, plundering his sugar-canes, and otherwise annoying him. Futteh Khan would never allow the name of the boy to be pronounced in his presence. A few hours before his death, when he was distributing his property among his children, the Cazi ventured to remind him of Mudduh Khan: "Who names that infidel?" said the dying man, "he is no child of mine."

Of the minor chiefs of the Sum, who deserve notice here, the principal is Arsilla Khan of Zaideb, who, having been on bad terms with his neighbours of Punjtar, was in a manner forced to save himself from ruin by seeking the protection of the Sikhs, strengthened by whom, he is now the most powerful of the chiefs of the plain. The Komalzyes have two chiefs of influence, Khadir Khan of Gooroo Mejar, and Ahmed Khan of Hatti Murdan; of the latter, mention is made in the narrative.

Mir Khan of Sudoom, known generally by the name of the Mir, is the most powerful of the Amazyes. His experience, firmness, and courage have gained him much respect, and enable him to rule with a stricter hand than the Eusofzyes will in general submit to. The Muchehi family (mentioned in the narrative) have however scarcely less influence among the Amazyes. Besides these, there are a few chiefs, who will be mentioned in the sequel, who have lately been turned out of their possessions by the Sikhs and Arsilla Khan.

It is easier to learn the general character of the chiefs above named, than to form a just conception of their power and resources. Mokurrib Khan's influence, for example, may be said to extend over a great part of the Sum, but his actual authority is limited to about seventy villages, (in these the smaller ones called "Bandas" are not included) from most, if not all of which he draws the "Aoshr" or tithe, with this, and the produce of his lands (the return from which is however but trifling) the "Jizeea," or tax on the Hindoos, the tax on the fakeers (or villains) and now and then some plunder from the Sikhs, he is able to maintain an efficient body of 1,500, or perhaps 2,000 foot men; and 5,000 of his tribe will rally round him on emergency. To his soldiers he gives but three rupees a month; but living is very cheap in this frugal country, where flesh is rarely eaten, and a fowl is a luxury. Mokurrib Khan has but few horsemen; he was endeavouring to raise a corps when I left him. His father is said to have left about 30,000 rupees in cash, besides valuable property in shawls, &c. the accumulated plunder of years. Arsilla Khan keeps up more horses than any other chief of the plain, but if the Sikhs left the country, he would sink into insignificance, and would be obliged to make terms with Mokurrib. Ahmed Khan and others are well inclined towards him, (for he is a liberal man, and bears a fair character) and would not permit him to be altogether crushed by the Punjtaris.

Of the military strength of the other chiefs, it is not worth speaking; each of them keeps up from two to six hundred followers, horse and foot, chiefly the latter, and they have the power of raising their clans, and have much influence in the "Jeergas," or public meetings, which assemble, to discuss all the more important questions.

The Eusofzyes, as before remarked, are not the only inhabitants of the Sum. Leaving for the present the original possessors of the country, who are now reduced to the condition of Helots; the other tribes are the Gudoons, the Khuttuks, the Baeezyes, and the Mamunzyes (the Mahomedzyes of Elphinstone); but these last may be considered as separate from the Sum, and will not be further mentioned here.

The Gudoons, called also Gudans, and east of the Indus, Judoons, are a Kaukur tribe, who migrated into these parts, perhaps two centuries ago. They are divided into two great branches, Salar and Munsoor, of whom the first are settled to the east of Punjtar, and the rest in Drumtour. The Salars are said to have 64 villages, and to muster 6,000 matchlocks; their government is a democracy, more rigid than that even of the Eusofzyes. I was nearly causing a quarrel at Grenduf, their chief town, by inadvertently asking who was their head Mullik. We were much struck by the appearance of wealth and comfort of their villages, which are large and populous, and the Hindoos seemed to be more numerous and thriving amongst them, than in any part of the country we visited.

The Khuttuks occupy the left bank of the Sundi,[7] from below Noushera to Jehangiri. They have not more than fifteen or twenty villages; and their position has forced them to pay obedience to the Sikhs.

The Baeezyes, whose numbers I have heard rated at 12,000 fighting men, are also Khuttuks, but they have for a long time been a separate and distinct tribe. Of their history I know nothing. They are always spoken of as the richest people in the country, and many of the Hindoos settled amongst them are said to possess great wealth. This is not improbable, as one of the principal roads from the north to Peshawar runs through their territory, and an active commerce is carried on, on either side of them, in salt, cloths, &c.

Like the Gudoons, the Baeezyes are governed by petty Mulliks, and have always preserved their independence against all foreign enemies. Of the population of the Sum, I can only form a guess of the probable amount, some data I had collected on the subject having been carried off by the Khyberees, but it may not perhaps be very inaccurately rated at one lac of fighting men. All the tribes above mentioned have the same manners and customs, and (including the Eusofs) may, without hesitation, be pronounced the best irregular soldiers in Afghanistan. Their cavalry, which are so few in number as scarcely to deserve notice, are from their mode of training and equipment rather Hindostanee than Afghan. The mass and strength of the Eusofzyes is infantry. Most of the soldiers, and every man is a soldier, are armed with heavy matchlocks; others have long spears, which they use with singular dexterity, either on horse or foot; a few are clothed in chain armour; and some use even bows and arrows of formidable size. They generally avoid close fighting, though if forced to it, they have the character of being excellent swordsmen.

It is said, that they have some idea of opposing cavalry by forming into close masses, or "Goles," with their spears extended; but this I have never seen, and am inclined to doubt. At whatever time of the day or night the "Nakara," or drum is beat in a particular measure, every man able to bear arm ssnatches them up, and hurries, ready for action, to his particular "Hoojra," or public meeting room, of which there are from eight to twenty in every village; and from thence, in distinct parties, under separate flags, they proceed to the scene of action, and despising the protection of walls, advance singly into the plain. A total want of discipline and order now distinguishes them. They have no head; each party, or "Hoojra," acts independently; and even those under one flag, will not always obey one leader.

We have here the strength, and weakness of the Eusofzyes: their number and alertness, their courage, sharpened by incessant fighting, and expertness in the use of their weapons, render them formidable to the irregular troops, but their peculiar mode of warfare incapacitates them from contending against a regular army. It is evident that a body of disciplined cavalry could, with the greatest facility, put to rout and cut up a herd of men scattered here and there over a level plain, totally ignorant of tactics, and without unanimity. We need no further proof of their incompetence to contend on the plain with even semi-disciplined troops, than is afforded us by the battle of Noushera, in which though stimulated to the utmost by religious enthusiasm, they were defeated by less than a third of their numbers.

Of the Kohistan, my information, is, I must confess, very imperfect, and will be here limited to nearly a barren detail of names.

The tribes of Booneer and the neighbouring hills, may be said to have no chiefs of any importance, the only individuals possessing influence being a family of Syuds, the descendant of Peer Baba, a celebrated saint, who lived in the time of the Emperor Humaioon.

Of this family, there are three principal branches amongst the Eusofs. The representatives of the elder and most influential branch are, Syud Azim and Syud Meeah of Tukhtabund, the capital of Booneer, who may be compared to the Abbot Boniface and Subfriar Eustace of the novel; Syud Azim, the elder, a good-natured, indolent character, having willingly resigned his authority to his more active and talented brother. The second branch is Syud Akber Meeah, of Sitana on the Indus; and the third, Syud Russool of Chumla.

Chumla, only separated from Booneer by a low range of hills, is nearly in the power of the latter; however, unless when some popular question is agitated, it is able to maintain its independence. It is divided among three proprietors. A colony of Komalzyes occupy the west portion; Noagee the chief town is the property of Syud Rusool; and the rest belongs to Mahomed Khan, a relation of the Punjtar family, on which indeed he is in some degree dependent.

The tribes of Swat differ from those of Booneer in paying more obedience to their Khans, and being less under the direction of their Syuds. Their most influential, religious character, is Mooreed Sahebzadeh of Oochoond, near Thanneh; but the respect paid him is variable and unequal.

In Upper Swat there are four principal chiefs. The most northerly is Pshuh Khan of Sundi, of whom I only know the name; next to him in position is Mudar Khan of Mingoweer, below whom are Kashun Khan, the son of Arsilla Khan of Bandeh (whose family were at one time of much consequence among the Eusofs) and Khadir Khan of Hodigram.

Lower Swat has but two chiefs who deserve mention. One is Zydoollah Khan, who was originally in joint power with Passund Khan at Thanneh, but the latter has lately been turned out and reduced to insignificance by his elder brother; the other chief is Khyroollah Khan of Alla Dund. He has only lately succeeded his cousin Euayutoollah Khan, who submitted to the Sikhs, and went to Lahore to pay his respects. The indignant tribe, deposed him in favour of his son, but the son has also been turned out by Khyroollah.[8]

Of all the Eusofzyes, the most powerful is Ghazan Khan of Deer[9], but he is perfectly aware of the delicate tenor on which he holds his authority, and in consequence is anxious to form connections with any power which may strengthen him in his rule. He intrigues with this view with the Douranees and with the Sikhs, and he is fast friends with the Bajore chief, and with the rulers of Cashgar and Chitrane. But the two first he would willingly betray, and the last he plunders whenever he gets an opportunity.

There is one chief who, though not an Eusofzye, yet from his position in the midst of, and intimate connection with, the Eusofzyes, and his singular history and character, must not be omitted in a description of the Eusofzye country.

Paieendah Khan, of Tanawul, is a Mogul of the Birlas tribe, the same from which the Ameer Timoor was descended. All record of the first settlement in Tanawul of his family is lost, and it has long ago broken off all connection with the other branches of the Birlas, which are still to be found in Turkestan.

The Tanawulees, who from their dialect, a corrupt Hindoostani, seem to be of eastern origin, are divided into two "tuppahs," the principal of which is Pulal, the other Hindowal, and these two divisions are, or were, respectively governed by two branches of the Birlas family.

Paieendah Khan is descended from the junior branch, the Khans of the Hindowal, who had little power till the time of Nawab Khan, (father of Paieendah) whose father having been killed by the chief of the Pulals, set himself up against them. Nawab Khan had the advantage of possessing the Douranee road, and enriched himself by a toll on all who travelled his way. The Douranees were constantly passing and repassing to and from Cashmeer, and their pride, as may well be conceived, could ill brook paying tribute to a petty tribe like the Tanawulees; much quarrelling and-heart burning was the consequence. The celebrated Noorjehan, more commonly known by the name of Adè, or *the mother*, the Baumizye mother of Futteh Khan vuzeer, was *en route* to Cashmeer, on a visit to Mahomed Azeem Khan, the governor. Toll was as usual demanded, not of her however or her party, who out of respect were to pass free, but of some people who followed her camp for protection. At this event the haughty lady took umbrage, and other causes of offence not being wanting, an army was sent under Jubar Khan to punish Nawab Khan. That chief had no option but to give himself up. He was received courteously, promises of favour and protection were showered on him, and he was requested to send for his family, when a maintenance and a place of residence would be fixed for them.

This last request opened the eyes of the prisoner to the intentions of his captors; he pretended compliance, however, with their wishes, and requested only that "Jam pans" (litters) might be sent with his son Paieendah Khan (then a lad, 17 years old) to bring the ladies. As the cortege was starting, Nawab Khan took his son aside, and whispered in his ear, "Take care of yourself, consider me as a dead man, and give me your prayers." When the party reached the Tanawul territory, Paieendah Khan broke the fine "Jam pans," and stripping the servants of Azeem Khan, sent them back to their master with the message—"My father is in your hands—do what you please with him; me, you will never get into your clutches again."

A heavy stone was tied to Nawab Khan, and he was thrown into the river. From this time, Paieendah Khan has been a sort of wild man, at war with all around him. Driven from his home, east of the Indus, by the Afghans, the Sikhs, and the Pulals, who had partially submitted to Runjeit Singh, and whose chief, Surbulund Khan, is now at Lahore, Paieendah Khan took possession of Am, on the right bank of the Indus, which originally belonged to the Pulals, and from thence, for twenty six years, has never ceased to carry on a series of depredations on the Sikhs and all who submitted to them. He boasts that he has four different times raised an army of Ghazis, who have all fallen martyrs in the cause. Of his first band only three men are alive, and they are literally one mass of wounds. Am is a small nook of land, only a few hundred yards square, shut in between the deep and rapid Indus, and the lofty chain of the Mabeen[10] hills, which close in upon it in a crescent.

The only road to it from the south, is over a difficult path cut in the face of the rocks which over hang the river. This and a somewhat similar spot higher up, called Chutter bai (where his son resides), and a few villages on the left bank of the Indus, are all the lands of which Paieendah Khan can now boast. The aggregate return from them is said not to exceed two thousand rupees a year, but by his forays on the Sikhs, he is able to maintain 1,000 paid soldiers; and he is openly and secretly assisted by 3,000 or 4,000 of the Tanawulees.

He seizes Hindoos, from the wealthy of whom he extorts money; some he forces to labour in chains; others he compels to become Mussulmans, and if they are refractory, he ties a stone round their necks, and flings them into the river;—no oaths or ties bind him. He takes money from a village as exemption from plunder one day, and plunders it the next. His own brother even he has stripped of every thing. The Sikhs have numerous forts on the opposite bank of the river; they dare not leave them; his very grass-cutters insult them every day with impunity. One of these forts commands that in which Paeen Khan himself resides. I pointed this out to him; "Would you like to see me take it," said he, "I will do so in half an hour."

In fact the Sikhs are only there by his sufferance; he derives a revenue from them; they paying, that their supplies may not be intercepted; as his band passes under their forts on a plundering expedition, the Sikh soldiers salute him from the walls, and wish him good luck.

The Sikhs some years ago bought off his forays by a jageer; but his cruelty and exactions were such, that the whole country rose, and Runjeit Sing was obliged to send word to him that he would give him the amount of his jageer, but must resume the land itself. Paieendah only answered by levelling with the ground the nearest Sikh village, and retiring again to his fastness. Since Runjeit Singh's death, Paiecndah Khan has been more active than ever, and his excursions would certainly extend to the Jhelum, but that his neighbour the Syud of Sitana is his enemy, and the Eusofzyes and Chogurzyes, who inhabit the hills above him, threaten his family, whenever he is known to have left them for more than a few days.

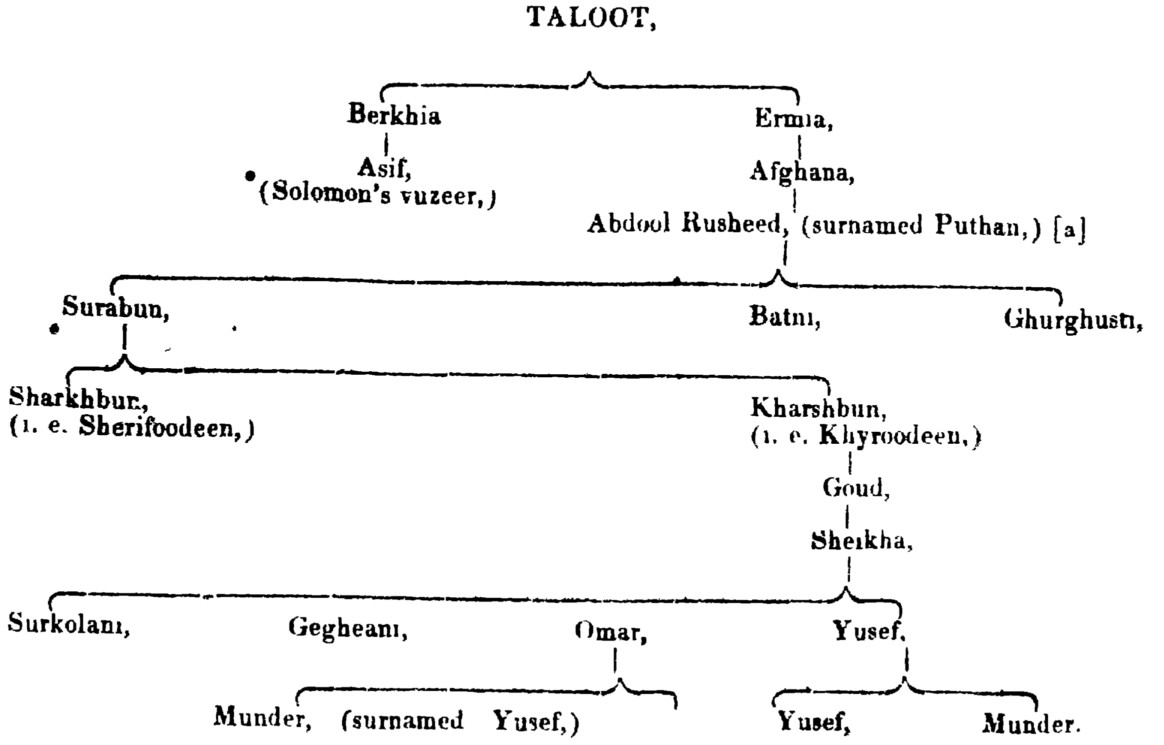
Were there any revolution in the Punjab, to distract the attention of the Sikhs, I should not be surprized at hearing that he had ventured on Cashmeer. He is well acquainted with the road, which is not difficult, and the petty Mussulman chiefs between Tanawul and the valley, would be rather inclined to favour him, than to offer him any opposition.

Having thus given a sketch of the principal political features of the country I traversed, the narrative, to which I now proceed, will be more readily understood."

Note.—It will be seen from the conclusion of the above paper, that it was but the intended commencement of a series. My poor friend Conolly sent it me with the heading "Part I. Introductory," his object being to follow it up with a Narrative of his Journey in the Eusofzyes country, in January 1840. I was awaiting the completion of the papers to publish them in serial order, when I heard of his death. The information however contained in this paper alone, is of itself not unimportant; and I therefore give it publication as it stands.

It is much to be regretted that we have lost the aid in Afghanistan of so intelligent an observer as the author of this short notice: the similar fate which befel Mr. Lord has deprived us of the result of that gentleman's intimate acquaintance with the character and habits of the Oosbeks, an unfinished narrative of his residence with Meer Morad Beg of Koondooz, written for this Journal, having been found among his papers. Will no one consent to supply what they have left incomplete?

Note 1.—To a different occasion is deferred the interesting history of the emigrations of the Eusofzyes. The subjoined Table will explain the supposed origin of the tribe; it is arranged from Dorn's translation of "Neamut-aollah."



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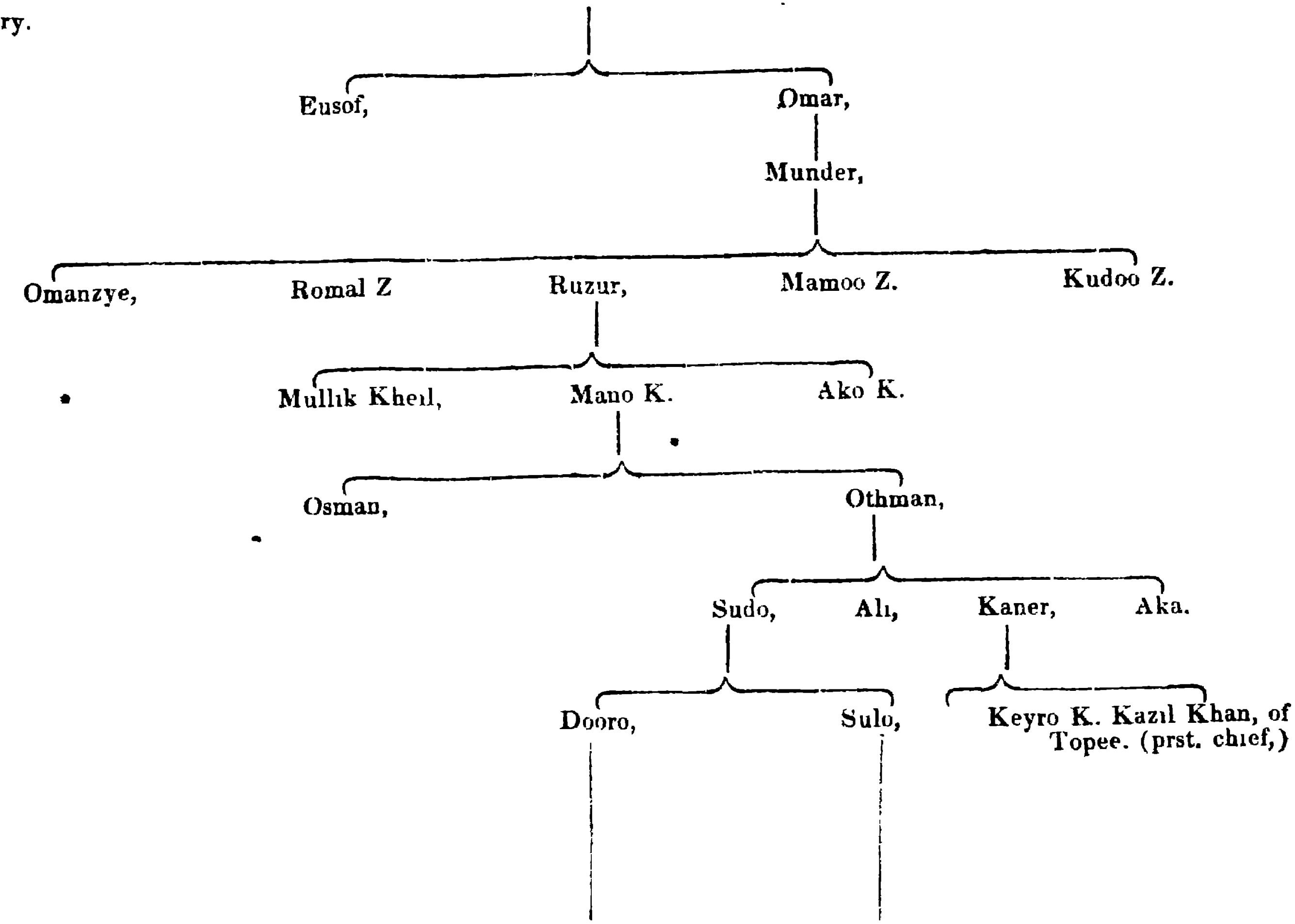
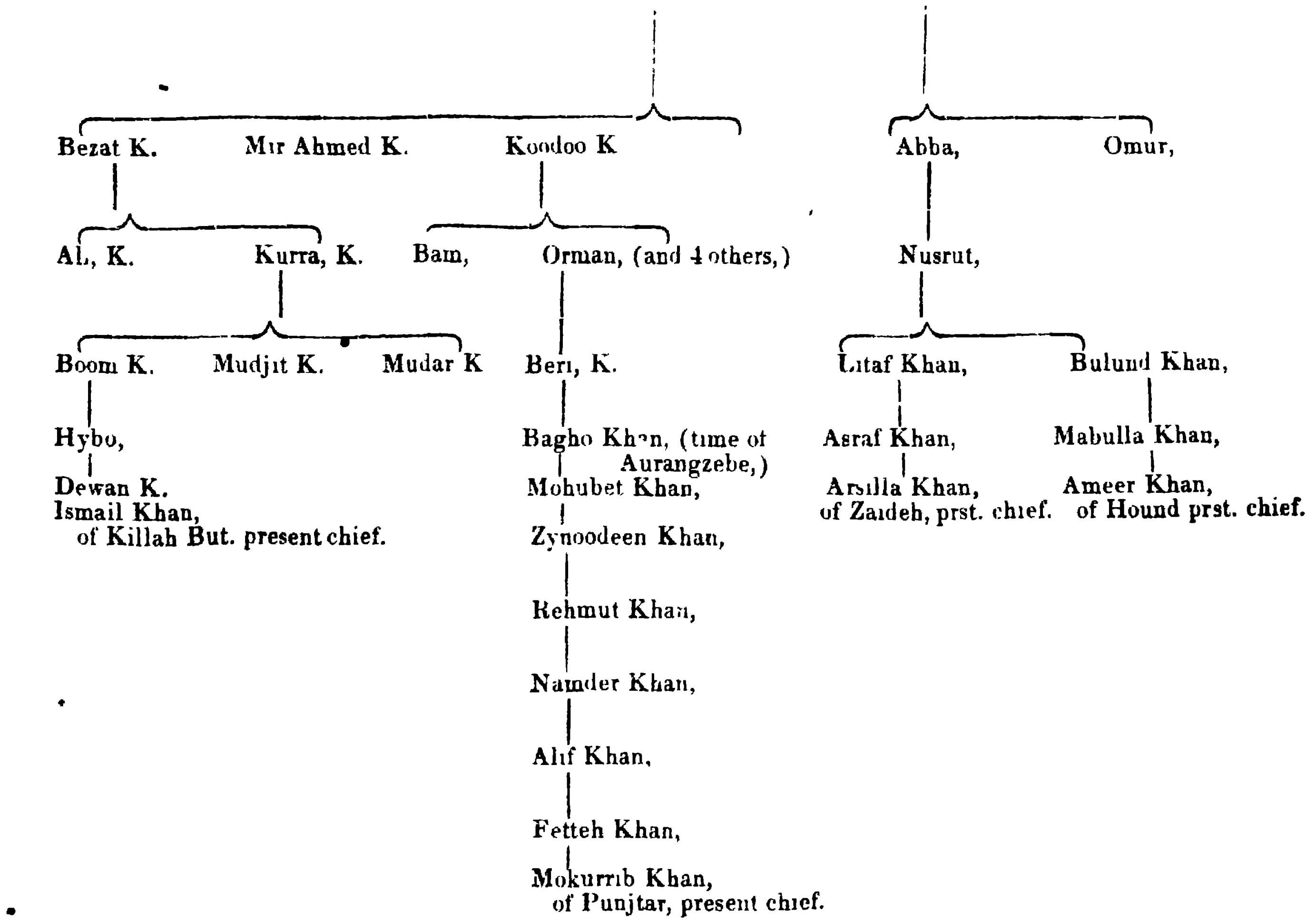
[a] Several derivations have been given of this word, which is not apparently known at present, at least in Afghanistan. It is probably an Indian corruption of "Pookhtoon," see Dorn's Afghans Part i page 38, and notes p 64, Conolly's trans. 2 · 130. Others derive it from "Peithana"—and it has been supposed to have been a title given by Mahmood of Ghuzni.

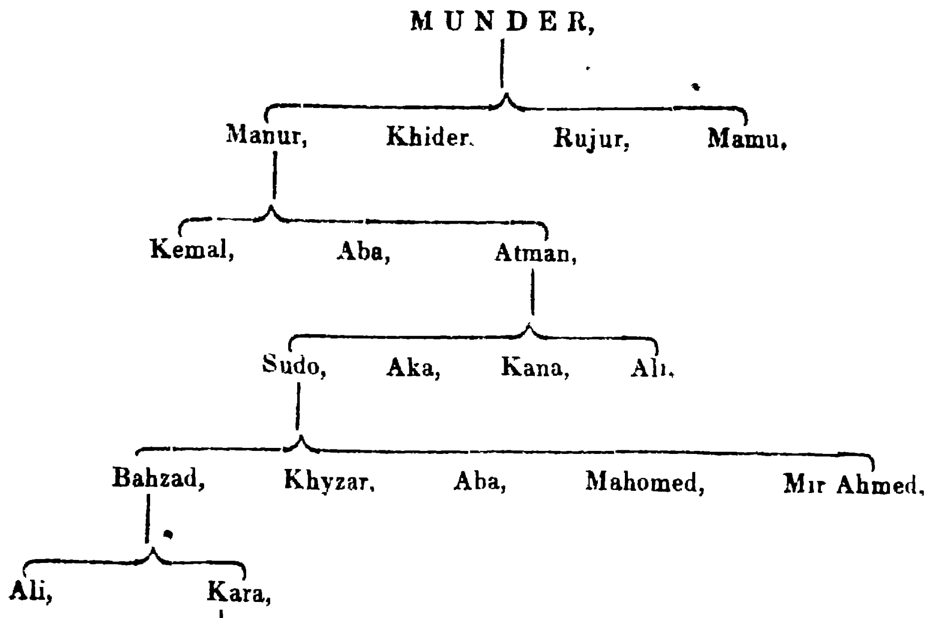
Note 2 —" The whole Munder nation resides in Sammah, which in Persian is called " Hamwareh," situated about Langer Kot," (Kholassat ulanjab, quoted by Dorn). The following Table, collected viva voce from the Eusofzyes, many of whom are proud of their genealogical lore, is useful in rendering intelligible the present political divisions of the country.





Note 3.—This is confirmed by the "Kholassat Ulansab," which mentions **Malik Taj Oodeen, the grandfather of Mulik Ahmed, whose descendants are the Malikzyes (Dorn, page 126, notes.)**

Note 4.—The Beri Kheil are also, as will be seen by the Table "Sudozyes." The "Makhzen Afghani" gives the following Table of descents from Munder in which the Khanship is assigned to a different family of the Sudozyes.



Khan Khaju, (who was the chief of the nine lacs of spears of the Eusofzyes in the time of Sheer Shah.

Note 5.—Of whose history, a sketch will be given, in the sequel.

Note 6.—The Booneeries (or Booneer wal, as they are more generally called) were the principal sufferers at that battle. Blinded by religious fury, and an undue estimate of their own strength, their only desire was to cut off the retreat of the Sikhs. They are said to have fought rather like devils than men. Moullas, boys, and unveiled women, mingled promiscuously in the fight. For days before, the whole Sum had been a moving mass of men, hastening from the upper country to join in the great struggle which was to vindicate the honour of Islam. Each man carried ten days' provision. No correct estimate has ever been formed of the number of the "Ghazis," which name, in anticipation of victory, they had assumed; the greater part only shared in the flight. Had they delayed one day more, they would have been joined by the Swat army, which never reached the field. But it was impossible to hold them back. The Booneeries, distinguished by their black turbans with a bright yellow border from the rest of the Eusofzyes, who are generally clothed in white, first rushed forward, and by thus precipitating the contest, lost the day their courage deserved to gain. But their reckless valour was of no avail. Their scanty stock of ammunition soon expended, they fought with arrows, spears, swords, stones; one man scrambled up behind the elephant of Phoolra Sing, the real leader of the Sikhs, and cut down that chief with his "silaweh," or long knife Repeatedly driven back by the steady fire of the Sikhs, they were as often rallied to the charge by the shrieks and curses of the women, and the "Allah ho Akbars" of the maddened Moullas At last, but not till they were decimated, and every house in Booneer had to mourn its martyr, they broke and fled, cutting through the Sikhs whom they had wished to intercept, and from that time, broken-hearted, they have scarcely ventured to leave their valley. After the battle, dead Booneeries were found lying on dead Sikhs, their teeth still clutching the throats of their adversaries Though seventeen years have elapsed since the fatal day, so deeply do they still feel their loss, that when unusual merriment has by chance prevailed in a "hoojra," a white-beard has been known to check them with—"Is this a time for laughing, when the bones of your brothers are whitening Noushera?"—Noushera is the common topic of conversation among the Eusofzyes, and the favourite theme of their songs. I was particularly struck with one which commenced,

"Ah Mahomed Azeem, where is the blood of our children you sold at Noushera?"
Chorus, between every line,
"Wae! Wae! Wae!" [b]

Note 7.—The Cabul river, between Peshawer, and the Aba sin, or Indus.

Note 8.—Since this was written, Evayut Oollah has returned from the Punjab, and is struggling to regain his authority. Having money, which his rival has not, he has succeeded in bringing over half his tribe to his side, and a furious civil war is raging. This trip to Lahore has been most disastrous to him. It cost him not only his country, but his eye-sight; a clumsy doctor at the Durbar having under pretence of couching, blinded him.

Note 9.—The history of the father of this chief will be found in Elphinstone.

Note 10.—In the name "Mabun," we have evidently a corruption of "Mea Maha Bun," or the great forest; a title sufficiently appropriate, on account of the pines which cover the mountain.

Note 11.—Of the map which accompanies this memoir, all that can be said, is, that it is better than any one hitherto published of the same country; but our every motion was so watched and misconstrued that we could only take a bearing by stealth, and some important bearings were lost in the Khyber Pass.

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[b] I have taken some liberty with the chorus, which is really "*wee wee*," and which, however melancholy it may sound when chaunted in a low solemn tone by the Afghans, could only appear ridiculous in English characters. It is the most usual chorus of the songs of the eastern Afghans. Mahomed Azeem it is well known (see Conolly and Burnes, shamefully deserted his friends at the battle of Noushera.

Extract from Proceedings of the Numismatic Society of London, 1837-38.

"A Lecture, by Mr. Williams, on the mode of taking casts in sulphur, from coins, medals, and Oriental cylinders, illustrated experimentally.

"The following is the process, as ingeniously described by Mr. Williams:—

"A number of slips of paper, about an inch in width, and of a length sufficient to go somewhat more than once round the coin, or medal, should be first prepared; and also a number of slips of card, not quite half the width of those of paper. The coin is then, to be oiled with a piece of cotton wool, dipped in sweet oil, and as much of the oil as possible wiped off with another piece of wool. The edge of the coin should next be placed about half way at one end of the slip of paper, and the paper rolled round it, a little stiff paste being previously put upon the opposite end of the slip. This will cause it to adhere firmly, and thus form a hoop round the coin, which will be suspended about midway by the edge, and must be retained in that situation by means of one of the slips of card, bent round, and placed beneath it, within the hoop of paper. The object of this arrangement is to cause the opposite sides of the mould to be as nearly as possible of the same size. A little water is then to be poured into a cup, or other vessel, and a sufficient quantity of the finest plaster of Paris lightly sprinkled into the water, leaving sufficient of the latter to cover it. A slight effervescence will take place as soon as the bubbles have ceased rising. The superabundant water is then to be poured off, and the mixture stirred with a spoon. The plaster is now ready for use. A thin coating of plaster is then to be laid on with a small brush, having moderately stiff hairs, over the face of the coin, and the mould filled up to the rim with the spoon. The use of the brush is to prevent bubbles from forming upon the surface of the coin, as these would entirely spoil the mould; and, in order to prevent the accumulation of bubbles in the plaster, which is afterwards poured in, it is advisable to raise the hoop with the coin and plaster in it, about an inch, and let it drop upon the table two or three times. This, of course, must be done immediately after the pouring in of the plaster. The whole is now to be left until the plaster is set, which will usually be in about twenty minutes.

"When this is effected, the under side is to be turned up, the strip of card removed, and any plaster that may have found its way between the edge of the coin and hoop of paper cleared away. The operation of mixing and applying the plaster, must now be repeated; and in about half an hour the plaster will be sufficiently set to allow of the moulds being separated from the coin. The paper must be removed, and great care taken in pulling off the moulds; as, unless they are taken off perfectly straight, they will be injured, in consequence of some of the deeper parts being broken off by the twisting of the mould. Should the mould not yield readily, the bottom of it may be dipped into water, when it usually will very easily come off. Should this however fail, heating the bottom of the mould before the fire, after having wetted it, will frequently have the desired effect. These precautions are necessary, as a gentle force being sufficient to remove the mould, some adhesion may be suspected where more than that appears to be required, which the methods pointed out will usually remove. Any superfluous plaster about the mould must be carefully removed, avoiding all injury to its surface.

"When these moulds are used for making a cast, the bottom must be placed in water so shallow as not to cover the face of the mould. They will imbibe a considerable quantity, and when they appear to be uniformly damp, they are ready for use. They must now be evenly placed at the proper distance, and in their right position, with a strip of paper passing rather more than three parts round, and held firmly in the fingers, the marks on the mould, made by the end of the hoop of paper in which they were formed, being the guide for their right position. The sulphur having been melted in a proper vessel (the one used by Mr. Williams being a pastry-cook's pattie-pan, with a handle, and a kind of spout made to it,) is now to be poured between the two sides of the mould, by means of the aperture left in consequence of the paper not coming completely round. As the sulphur cools, which is very soon, it shrinks; and the vacancy thus left must be immediately filled up,—this being repeated until the edge is perfectly solid The moulds are to be removed with the same precautions as when they were taken from the coin, and the edge of the cast carefully pared, and then rendered smooth by being rubbed with a piece of fine sand-paper. Should they be required nearly of the colour of the sulphur, nothing further is requisite, except a slight polishing with a piece of cotton wool, or a soft brush. For his own casts, Mr. Williams has considered it advisable to use an artificial colour, which is given by applying black lead in powder to the casts, with a soft brush, and then covering them with a varnish composed of a solution of dragon's blood in spirits of wine, which gives them a fine dark, bronze appearance

"Some precautions are necessary to be observed in using the sulphur. When melted, this substance is at first very fluid; as it gets hotter it becomes thick and ropey, and a still greater degree of heat renders it again comparatively fluid It is, however, fit for casting in the first of these states only, and if employed in the other cases, usually either destroys the mould, or produces a bad cast. The best criterion is to observe when the sulphur begins to solidify round the edges of the vessel in which it has been melted; it may then be used with safety. It also often happens that the first cast taken after the mould has been moistened is a bad one, in consequence of there being too much water upon its surface. A second cast taken immediately, without wetting the mould again, will usually be a good one; and not more than three should be taken without repeating the moistening; for, should the mould be too dry, it cannot be separated from the sulphur without injury. It is also a good plan to place the wetted moulds upon blotting-paper, as it quickly absorbs the superfluous moisture; but this requires some experience, as the mould often gets too dry to be used without subsequent wetting; and the other method is perhaps the safest for beginners. It is often necessary only to dip the fingers in water, and apply it to the back of the mould, to give it the necessary degree of dampness. These are matters, however, for which a little practice and experience are the best guides.

"In the casts made from moulds formed in this manner, it is obvious that the thickness depends upon the resembrance, or the fancy of the caster. Should the exact thickness be required, the following method of making the mould may be resorted to:—

"Here, the coin having been oiled, as in the former case, must be placed with the side which is least raised upon a flat surface, such as a piece of glass, or a slate, which has also been previously oiled. The plaster is applied to the upper surface of the coin with the brush, as before, and the whole is then to be covered with as much of the plaster as may be required. When set, this will separate from the surface upon which it has been placed, and exhibit the coin embedded in the mass. It must be carefully cleared of the superfluous plaster, leaving a slightly shelving depression round the edge of the coin; and hollows must be made in the flat surface of the surrounding plaster with the point of a knife. This must now be covered with soap-suds, the coin being carefully retained in its place. The operation is now to be repeated upon this surface, as in the first instance, the liquid plaster being poured over the whole of the flat surface of the surrounding plaster. When set, the two parts of the mould will be easily separated, the soap preventing the surface from adhering; and, the coin being taken out, a channel must be cut to the outer edge of the mould, for the passage of the sulphur. When prepared by moistening, as in the former instance, and put together, the raised knobs corresponding with the small hollows made with the point of the knife, will keep all steady; and, the sulphur being poured into the mould through the channel cut for it, a cast of the coin will be produced, exhibiting an exact facsimile of the original.

"From this process, it is not difficult to perceive how casts of small objects of different kinds may be taken; for example, moulds of the cylinders from Babylon or Persepolis. These require to be taken in at least three parts. Having oiled the cylinder, it is to be surrounded with a wide strip of paper, and the portion enclosed taken, say one-third. Having removed this, and carefully trimmed the edges, made hollow in the sides, as in the coin-mould, and soaped them, it is to be replaced upon the cylinder, and another portion taken, say another third, by hooping with paper, &c. as before. This after being separated from the first portion, trimmed, &c. as before, is once more, with the first portion, to be applied to the cylinder hooped with paper, and the third portion taken. When used for casting, after moistening and putting together, a piece of doubled paper may be applied to one end, which may be kept in its place by a finger placed beneath it, and the sulphur poured in at the other end, until the hollow left by the contraction of the sulphur disappears. When cool, the mould is to be removed, and the cast trimmed, cleared of the marks of the junction of the mould, and, if thought fit, black leaded and varnished, as in the case of the coins.

"Mr. Williams concluded with a few words respecting the purchase of plaster of Paris. Of this article there are several qualities; that procured at the oil-shops being the commonest. That which is known by the name of *Super* is the only kind which should be used for moulds; and it is not generally to be obtained except from the actual manufacturers. The best he has met with is prepared by Grande and Sons, Bedford Street, Liquorpond Street; and sold at the rate of one shilling and sixpence per bag of fourteen pounds; or wholesale at seven shillings per cwt. A bag of seven pounds may, however, be procured.

NOTE.—I have extracted and published this, in the belief that the account of the process may be useful to coin collectors in this country.

Proceedings of the Asiatic Society.

(Wednesday Evening, 13th January, 1841.)

The Honorable H. T. **Prinsep** in the Chair.

The following gentlemen were proposed as Members:—

Capt. R. **Fitzgerald**, of Engineers, by the Officiating Secretary, seconded by Lieut A. **Broome** of Artillery.

C. B. **Trevor**, Esq., C.S. by T. S. **Torrens**, Esq., seconded by the Officiating Secretary.

Raja Khan Behadoor, Khan of Gyah, by the Honorable H. T. **Prinsep**, seconded by the Officiating Secretary.

The following gentlemen, have been elected Office-bearers for the current year—

President:

The Honorable Sir **Edward Ryan**,

Vice-Presidents:

The Honorable Sir J. P. **Grant**,
——— Sir H. **Seton**,
——— H. T. **Prinsep**,
——— W. W **Bird**.

Committee of Papers.

Major W. N. **Forbes**,
E. **Stirling**, Esq.,
N. **Wallich**, Esq., M D.
H. H. **Spry**, Esq., M. D.
Professor W. B. **O'Shaughnessy**,
C. **Huffnagle**, Esq.,
Lieut. A. **Broome**,
Dr. J. J. **Hæberlin**,
Baboo **Prosoonocomar Tagore**.

Library and Museum.

The following books were presented:—

Lardner's Cabinet Cyclopædia—England; vol. 10th, ...	1
Ditto ditto—Greece, vol. 7th, ...	1
Madras Journal of Literature and Science, No. 27 April—June, 1840.	1
Edinburgh New Philosophical Journal, by Professor Jameson, No. 57 April—July, 1840.	1
London, Edinburgh, and Dublin, Philosophical Magazine and Journal of Science, 3rd series, vol. 17th, No. 108, August, 1840.	1
Journal des Savants, Juin, 1840, ...	1
The Calcutta Monthly Journal, 3rd series, No. 71. October 1840, ...	1
Descriptive Catalogue of the Chinese Collection in Philadelphia, 1839, 8vo.	1
Transactions of the American Philosophical Society, vol. 6th, pt. 3rd; New series, Philadelphia, 1839, ...	1
Laws and Regulations of the American Philosophical Society, Philadelphia, 1833, ...	1
Proceedings of the American Philosophical Society, vol. 1st. Nos. 7, 8, 9, 10, 11, for 1839-40, ...	5

Transactions of the Geological Society of London, 2nd series, vol 5th, pt. 3rd, London, 1840, 4to.	1
Memoir of a Geological Map of England, by G. B. GREENOUGH, London, 1840, 2nd Edition,	1
Geological Map of England and Wales, by G. B. GREENOUGH, 2nd Edition,	7
Agulhal Light Fund,	1
Oriental Christian Spectator, vol. 1st, No. 10, 2nd series, October 1840,	1
Map shewing the Routes from Jubbulpore to Umurkuntuk, by P. A Reynolds,	1
Lardner's Cabinet Cyclopædia—Taxidermy,	1
Archæologia, or Miscellaneous Tracts relating to Antiquity, London, 1840, vol. 28th, 4to.	1
Report of the British Association for the Advancement of Science for 1839, 8vo.	1
Wilson's Translation of Vishnu Purana, a System of Hindu Mythology, London, 1840, 4to. (two copies.)	2
Journal of the Royal Asiatic Society of Great Britain and Ireland, London, 1839, No. 10, 8vo.	1
Edinburgh New Philosophical Journal, by Professor Jameson, 1839 and 1840, Nos. 54 and 55, 8vo...	2
Transactions of the Medical and Physical Society of Bombay, 1840, No 3. 8vo.	1
The Calcutta Monthly Journal and Repository of Intelligence, November 1840, Nos. 62 to 66 and 72, 8vo.	6
Magazine of Natural History, New series, No. 38, February 1840, London,	1
The Athenæum, London, 1839, pt. 144.	1
Annals of Natural History, or Magazine of Zoology, Botany, and Geology, August and September 1840, Nos. 33 and 34,	2
London and Edinburgh Philosophical Magazine and Journal of Science, 3d. series, July and September 1840, No 106, vol. 16th, and Nos. 107 and 109, vol. 17th,	3
Proceedings of the Geological Society of London, 1839 and 1840, Nos. 66, vol. 3d, and No. 65, vol. 4th,	2
Proceedings of the Numismatic Society, London, 1837-38.	1
History of British Birds, by W. Yarrel, London, 1840, pt. 20th.	1
Figures of Indian Plants, or "Icones Plantarum Indiæ Orientalis," by R. Wight, Madras, 1840, Nos. 17 to 21, (stitched together,) 4to.	1
Annales de Chimie et de Physique par MM. GAY, LUSSAC et ARAGO, Table des, Tomes 31, á 60, Paris, 1840, 8vo.	1
Journal des Savants, Mai et Juillet, 1840, Paris,	2
Korte Beschrijving van het Zuid-oostelijk Schiereiland van Celebes, &c. Door J. N. VOSMAER, 8vo.	1
Gelehrte Anzeigen, No. 170, August 1839, (2 copies)	2
Gelehrte Anzeigen Herausgegeben von Milgliedern der K. BAYER. Akademie der Wissenschaften, Munchen, 1835 to 1839, 4to.	9
Uber die indischen Verwandtschaften im Ægyptischen, Von O. FRANK...	1
Verhandelingen van het Bataviasche Genootshap, Batavia, 1838, vol. 17th, pts. 3d to 8th,	1
Ueber die indischen Verwandtschaften in Ægyptischen, &c., Von O. FRANK.	6

Ueber das Bild des Weltbaumeisters, Visvakarman, in einem der Felsentempel bey Ellora in Indien. Von O. Frank.	1
Molluscorum species, &c. Resensuit, Dr. J. R. Roth. Dissertatio Inauguralis. Monachii, 1839, (presented by the author.)	1
Kshetratatvadipika, (in Sanskrit.)	1

The Officiating Curator submitted his Report for the month of December, 1840, from which the following is an extract:—

"*Osteological Department.*—We have here added two skeletons (Pelican and Flamingo), and we shall I hope soon be provided with almirahs for the smaller skeletons.

"*Mammalogical Department.*—Nothing new.

"*Ornithological Department*—A pair of Flamingoes, a Pelican, and a Pigeon have been added.

"*Reptiles, Fishes &c.*—Nothing new.

"The total of additions to the Museum this month have been—

"1. A bat Vespertilio (Murinus?) Presented by D. Glegg, Esq—preserved in spirits.

"2. A Pigeon (Columba ——— ?) Mr. F. M. Bouchez—stuffed and mounted.

"3. A small tortoise, (Emys?) Mr. Nicolas; skeleton—mounted.

"4 Two Pelicans, (Pelicanus onocrotalus,)—purchased. 1 skeleton, 1 stuffed—both mounted.

"5. Three Flamingoes, Phœnicopteros (Indicus?) purchased. 1 stuffed,—1 skeleton, mounted.

"In conclusion, I beg to recommend to the Committee, that the printing of the nine "Catalogues, occupying the 40 pages of the book herewith sent, be commenced; pre-"facing this series of our Museum books with an introduction, somewhat after the pro-"posed one annexed, for correction to this report. We shall thus, as we are framing, "and placing collections, be proceeding with the Catalogues, and every series so ar-"ranged is then available to the student; and is placed, as far as human care can ex-"tend, beyond the risk of oblivion and loss."

The proposition contained in the Report was concurred in, the Honorable the President, remarking on it—

"The Report of our acting Curator shews great attention to the duties entrusted to him, and I quite approve of his proposal to print the Catalogue sent round with his Report."

The Officiating Curator reported that a considerable number of duplicate specimens, principally of Birds, &c. were available for transmission to Europe; and he moved, that as many specimens of great interest to naturalists might be collected, prepared, and sent to England at a small expense, it was worthy the attention of the Society whether such might not be prepared, and sent to the Honorable the Court of Directors, as due to them, from the Society.

The Officiating Curator was instructed to prepare the duplicate Ornithological Specimens and Reptiles; as also the duplicates of Capt. Hutton's Spiti Valley Geological collections, for transmission to the Honorable the Court of Directors, through the Government.

The Officiating Secretary read to the Meeting, the following note from Mr. John James Middleton, who had undertaken to furnish notes on Major E. Pottinger's Astrolabe.

"I have much pleasure in returning Major Pottinger's Astrolabe, and your very valuable book.* It may be gratifying to you to know, that from the observations of Ulug Begh, I have without difficulty ascertained the forty-two stars, given on the face of the Astrolabe.

"I have not yet succeeded in getting the plates finished, but they will soon be so. I have had them all done three times, and yet not quite to my mind; the lithographers *will* think for themselves, instead of confining themselves to mere imitation of my drawings, and you may imagine the consequence. I send you the drawing of the back of the instrument, which is the best I have got; yet it has some defects, on account of which it must be redone. I expect them all to be completed in the course of a week however; and as all the materials for my notes are ready, you may expect the whole soon."

Read a letter from Dr. Othman Frank, Professor of the University of Munich, recommending to the notice of the Society, Dr. Roth, whose intention to visit India is to enrich his natural knowledge; and presenting to the Society the following Treatises of his own, viz.—

1. On the image of Visvakarman
2. On the image of Hari-hara.
3. On the relations of India to Egypt.

Read a letter from M. C. Visscher, Secretary to the Batavian Society of Arts and Sciences, forwarding for presentation to the Socitey, the 3rd, 4th, 5th, 6th, 7th, and 8th parts of the 17th vol. of Dissertations, published by the Batavian Society, accompanied by a Chart and 15 Illustrations.

Read the following paper on the Mythological connection between Artemis and Nana, by Dr. W. E. Carte, 61st Regiment N. I.

"On the Mythological connection between Artemis and Nana.

"NANA NANA PAO. This deity has been identified as the Grecian Artemis, the Ceres or Diana of the Latins, but as the analogy is as yet incomplete, an endeavour will be made to establish it; with this view, each of the words (Artemis and Nana) will be considered separately as to their etymology, in the hope of arriving at some degree of certainty, on so difficult a subject.

"First then, as to ΑΡΤΕΜΙΣ. The commonly received etymology of this word is, αηρ-τεμνω, the air cleaving, but as the Greek adjective αεροτομος exists, had her name been derived from this source, it would have been written αεροτμα, and not Αρτεμις, for this reason probably Donnegan, in his Lexicon, omits this derivation altogether, nor does he supply another. The coin of the Emperor Commodus (see Brewster's Edinburgh, Encyclopædia, Art. Numismatology, Fig. 7. Pl. 423.) gives a delineation of the Artemis of Ephesus, where her principal temple was situated. She is here represented in a cereal character, as the producer of food, in fact the words of Virgil—

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* The tables of Ulugh Beg, with Latin translation.

> '—— Vos ô clarissima mundi
> Lumina, labentum cælo qui ducitis annum,
> Liber et alma Ceres,'

prove, that the Moon and Ceres were one and the same; further, to show the influence the moon was supposed to possess over the vegetation process, the same author has—

> ' Ipsa dies alias alio dedit ordine Luna,
> Felices operum '

and again

> 'Ipse Pater statuit quid menstrua Luna moneret,'

" And Horace addresses her as—' Prosperam Frugum.'

"But to return to the coin; as before remarked, the Moon, under the name of Artemis, is represented on it in her cereal capacity; the lower part of her body is immersed in the αρτοθηκη or panarium, or receptacle for bread. She has many breasts,[*] betokening her fecund influence; her hands are expanded to denote liberality, and her head is surmounted by the Modius, or grain measure, and a harrow (possibly the symbol on the Nana coins) is attached to her by chains. All these are undoubtedly cereal diagnostics, and do not all assimilate with Artemis as derived from αηρ-τεμνω; but if the words Αρτος *food, bread,* and ιημι *to send forth, produce,* be taken, a compound word will be formed, which exactly coincides with her functions, Αρτεμις, the producer of food; a parallel etymology is afforded in the word Ανθεμις (from Ανθος) a plant remarkable for the profusion of its flowers.—The star on the coin is probably Arcturus, from its supposed influence in causing rain and storms, and the stags were assigned to draw her chariot.

"2—NANA—Nan, نان in the Persian language signifies *bread;* and Nan-i-khur-chung نانِ خرچنگ the *Moon;*[†] *khurchung* taken as one word, means a tortoise, from the shell of which animal the Lyre was originally formed, but if divided into two separate words, viz. Khur-chung, the signification will in that case be 'Sovereign (of the) Lyre.' Nan-i-khur-chung will therefore be 'Nan, Sovereign of the Lyre.' Here then is NAN in a cereal capacity, and also connected with the Lyre, which instrument frequently accompanied representations of Diana as sister of Apollo.—The name of the Latin goddess may therefore be Dea Nana, or Diana, instead of originating from Dies-dianus, (an adjective which has no existence in the Latin, except in combination,) as is commonly conjectured.

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[*] As these supposed *breasts* are *without nipples*, they may represent the cakes of bread mentioned when treating of Nana, further on.

[†] Wilkins' Richardson's Dictionary word نان.

"To the above, it may be added, that on several of the Nana coins, the figure on the obverse bears a stalk and ear of corn in one hand, and what appears to be one of maize in the other, while in front and under it, occur round symbols representing probably cakes of bread. See J. A. S. vol. v. plate 3, figs. 2, 3, and 5, also plate 36 (same vol.) figs. 1, 2, 3, and 5.

"In the Hindu Mythology, there is also a goddess named 'Anna Purna Devi,' (vide J. A. S. page 345, No. 54, for June 1836,) whose name is deduced from the Sanscrit words 'an' *food* or *grain*; and Purna (pronounced poorna) to *fill* or *cause to abound*, being synonymous with Artemis; this goddess is merely an alias of Luchmi, the Hindu Ceres. The similarity of Nan and An, is also obvious.

"From what has been above brought forward, it will not perhaps be thought unreasonable to conclude, that Artemis, Nana Rao, and Anna Poorna Devi, were identical, as well in name as in office; RAO being a Sanscrit word (meaning sovereign) and not being easily resolved by its adopters into a feminine termination, may account for its retaining the masculine one.

Read a letter from Lieut R. PIGOU of Engineers, communicating through Col. D. MACLEOD an account of the Topes of Darounta, and Caves of Bahrabad, of which the following is a copy.

" I have the pleasure, herewith, to forward two boxes and some coins taken from the Jullalabad Topes; the third box I had previously promised to Dr. Atkinson, to whom it is now made over; it was similar in shape to the box No. 1, but not quite so large. I regret that the small gold box, with its contents, has been stolen, as it was the greatest curiosity of all; but the precious metal excited the cupidity of my servants, who have made away with it. The marble slab is too heavy to send down by Dák, and I have not got it with me; indeed I am not sure that it has not been lost, but it is possible that it may have been left in my hut at Jullalabad. I also send you a rough sketch of the Bahrabad Caves, which will give an idea of the place; I am sorry I have not time to make a more elaborate drawing, but must forward it rough, just as it was sketched. Want of time must also plead my excuse for the bareness of the few remarks I have penned, but no doubt your talented Secretary will be able to draw up a paper on the subject, should he deem it worth while."

The boxes with their contents, coins, and a small piece of rock crystal perforated were shown to the Society, and Lieut. PIGOU's paper upon his discoveries read to the meeting. Lithographs of the boxes with Lieut. PIGOU's paper will be, the Officiating Secretary informed the meeting, published in an early number of the Journal, in connection with a paper by Mr. BIRD on the Kanari Topes opened by him.

For the presentations and contributions the thanks of the Society were accorded.

JOURNAL

OF THE

ASIATIC SOCIETY.

Extracts from the Journal of an Expedition into the Naga Hills on the Assam Frontier. By Lieut. GRANGE, *Assistant Political Agent, undertaken by order of Government in the beginning of* 1840. *(taken by permission from the records of the Political Secretariat under the Government of India.)*

Leaving Nowgong, agreeably to instructions, on the 3rd of December 1839, I proceeded to Dhoboka, which I reached on the 5th of the same month. The country to that point being well known, requires no further description.

I left Dhoboka on the 6th of December, at about 7 A.M., and arrived at Oopur Jumonah, at about 11 o'clock. First crossing the Jumonah river about half a mile above the Dhoboka village, we entered Tularam Senaputtee's boundary line. The route lay through a forest, called Rungaghora, from whence most of the villages on the banks of the Jumonah procure their fuel. There has been an attempt at a clearance in the forest, but much difficulty is experienced by the Ryots, from the great number of wild animals which infest this part of the country; viz. elephants, tigers, rhinoceroses, buffaloes, and hogs. The path the whole way is tolerably good. Oopur Jumonah is a hamlet of about twenty or thirty houses, scattered along the banks of the Jumonah river; it is fast decreasing in number, in consequence of the people having suffered much from the destruction of their crops by the wild animals in the neighbourhood.

7th December.—Marching at about 7 A.M., I reached the Cacharee village of Nermolea, the distance being about ten miles. One hour's marching brought us to the Ha,our Ghaut, which we crossed to the Cacharee village of the same name in the Nowgong district. The Jumonah river is navigable for small boats, at all seasons of the year to this village. The crops between Ha,our and Nermolea had suffered much from the high rise of the river Jumonah, which overflows its banks nearly the whole length of its course.

8th.—Departing from Nermolea, and passing considerable cotton tracts, we reached the village of Bokolea, four miles distant, where I found some of the lime burnt by Mr. Martin for Government, in store. The country along the banks of the river between this village and Ramsa (a small village six miles west of Mohong) is uninhabited, and is composed of large grass wastes with patches of forest at intervals ; the greater part of the low lands below the falls of the river, are liable to inundation. Passing through Bokolea, we continued on till we came to the huts erected for us, on the Tutra river, a small stream, which issues from the Mikeer Hills. To this point most of the Kyahs and other traders trafficing in cotton come in the cold season ; there is high ground about it for a Haut (or fair), and there is a Mikeer village two miles inland. A short way above is the Oogeroo Chokey, established by Tularam, who exacts a toll from all his Ryots who frequent the Tutra mart.

9th.—Leaving the Tutra encampment, and passing through forest and grass jungle, we came to some low, undulating, grassy hills, from whence a tolerable view of the surrounding country is obtained, which became more overspread with hills, chequered by the ancient cotton cultivations of the Mikeers. These migratory agriculturists seldom remain longer than two years in one locality, and only very fine land induces them to determine on a three years' residence; by which time a deep rooted grass springs up, which drives them to fell more forest for their staple crop, not being able to use the ploughshare to eradicate the roots, on account of the nature of the ground. Passing over these hills, we gradually came on the rumbling of the cataracts, which increased, as we approached, into a stunning din; the river at this part is confined by low hills on both sides, and the quantity of water that rushes over the falls in the rainy season, must be very considerable; the height I was shown as that of the ordinary rise, cannot be less than 100 or 150 feet. Two paths lead over the hills on either side, and all cotton boats are obliged to be unladen at this point, and a change of boats takes place. Above the fall, on the right bank of the river, is a stratum of chalk. Proceeding by the path on the right side of the river, we came to a small rivulet at the base of the hill, in the bed of which, I was shown the stratum of coal that had been excavated. I was informed by Lieut. Brodie that it lay to the right of the path, and was comprised in a space of about fifteen or twenty feet long, up to the junction of the streamlet with the river Jumonah. The water is about two or three inches deep, and the coal bed is visible six or eight inches above the surface of the water; the superficial part of the seam is composed of a soft black substance, which on being cut away produced shale, or black slate, and further excavations showed servicable coal. Above the coal formation lies a thin stratum of red sandstone ; above this is a greyish soil, two feet deep, the surface of which produces the forest and underwood usually found in the vicinity of hills in Assam. The bed of the rivulet is about six or seven feet broad, by four or five deep; on either side of the coal-bed I found chalk. The only difficulty in working this seam would be the rise of the streamlet in the rains, and the expense that it would take to carry the coals to below the falls. The former difficulty might however be removed by leaving a wall of the coal itself, and opening the vein a few yards inland. A short way further on are two more rivulets, in both of which I found chalk rocks; one description contained small globular, dark grey substances, resembling decayed pebbles. The distance from this locality to Ramsa is about one mile. The rock from which the lime was cut for Government, is situated in a small river below the falls called Mayong Deesa, in Tularam Senaputtee's country. The coal found by Ram Doss Mohurer is a short way from Ramsa (half an hour's march) in a N.W. direction; it is in a small streamlet called Bongrong, which is almost dry in the cold weather.

10*th*.—Left Ramsa, and marched through fine open forest; three miles distant crossed the Jumonah into Tularam's country ; one mile further on recrossed it, and in half a mile reached Mohong.

11*th*.—The Nagas of the village of Gafaga came in, and gave me the following account of themselves:—They formerly belonged to the tribe of Nagas called by them *Chokannew*, and by the Cacharees *Dewansa*, living south of the Sumoogoding range, and on account of the frequent quarrels and oppression they had been subjected to from their own tribe, they had been obliged to emigrate: they first took possession of the high hills on which the present village of Tokophe is situated, but even there, not being free from the attacks of their persecutors, they again fled to the lower hills upon which they are now. The following is the information I have been able to pick up regarding the wild tribes here about. The villagers of Gafaga, Mezattee, Badolasong, Kola, Muzals, Tooroofen and Gesinga, are all of one tribe, and have separated into a number of villages in consequence of quarrels amongst themselves; not acknowledging any regular chiefs, and every man being his own master, his passions and inclinations are ruled by his share of brute force, his dexterity with the spear, to which arm they have immediate resort for the adjustment of the slightest quarrel, and in consequence, villages are continually at feud. In addition to this, the Tokophen Nagas, who are of a different tribe, and speak another dialect, in league with the Nagas about the Sumoogoding range, pay them occasional maurauding visits, and take advantage of their flight on their appearing, to pillage their villages. The Nagas of the village of Gesinga, or as it is called by some Rengma, are at feud with those Nagas on the eastern bank of the Dhunsiri, in the Jorhat division, called by the Assamese, Lotah. The former village is under charge of an half Assamese and half Naga, Gesinga Phokun, who exercises some rule over the village. The latter tribe, from the different accounts I have heard of them, appear to be of a more civilized character than the Nagas on the west bank of the Dhunsiri, having regular chiefs, whose orders they regard, and trading largely with the Assamese at Cacharee haut. The Tokophen Nagas came in, and declared that they had no evil inclinations towards the Majuttee and Gafaga Nagas, but that they had heard that the Dewansas intended making an excursion against them at the full of the moon. I gave them clearly to understand, that if they persisted in their present mode of life, and would not leave off their maurauding habits, they would be punished severely, and not allowed to remain in their present locality; and nothing more of the intended excursion was heard. It is a common practice with Nagas, when they are going to make an excursion against a village, to set reports afloat that other villages or tribes intend an excursion against the same village, which blinds the villagers of the place attacked as to who the real assailants are, as their excursions are generally performed at night. The Nagas here about procure their brass ornaments from the village of Gesinga, and their spears and daws from the Dewansa or Chokannew Nagas. Their villages are of inconsiderable size, and they have but few domestic animals; some cows of the hill breed, pigs, and fowls, for the purpose of sacrificing to their gods.

They acknowledge the power of three gods, viz.

1*st.* Zanghuthee, or Janthee, the most powerful, to whom they sacrifice cows, bullocks, or bulls. His power prevails in all serious illnesses, and can kill or cure.

2*nd.* Hyeong, to whom they sacrifice fowls only, his power is of slighter extent.

3*rd.* Dherengana, to whom they offer hogs.

The two latter are the tutelar gods of the village of Gafaga, each village having different ones; some of them think it necessary to sacrifice at one time, for any great worship, a cow, or bullock, a hog, and a chicken a few hours old; the former are eaten, but the latter is thrown away. Zanghuthee is acknowledged by all of them. Goats are not allowed as offerings. The physiognomy of the Nagas about here partakes a good deal of that of the Cacharee, in consequence of the admixture of the two tribes. I saw some Assamese who had been kidnapped when young, and who had become so accustomed to the idle, uncouth life of the Nagas, that they refused to leave them.

Matrimony amongst these Nagas is a civil contract, unattended by any religious ceremonies. The damsel is courted, and is presented with fowls, dogs, and spirits, according to the fortune of the lover, and after her consent and that of her parents (for they have the right of refusing) is obtained, the accepted lover gives a feast to all her relatives. A day being appointed for the union to take place, the whole of the villagers are feasted; they in return are obliged to present the new married couple with a new house in the village. Any breach of marriage vows is punished by a fine of a cow or hog, by the counsel assembled for trial of the culprits. One of the most singular customs is, that after the birth of the first child, the parents and relatives of the new married couple are prohibited from touching any other villagers, or any other villagers from touching them, for two or three days; should a villager infringe the rule, he is obliged to remain two or three days in the house of the parents and not to mix in society; but if the relatives of the party are in fault, they are punished by a fine of a feast.

On the occurrence of a death, they howl their lamentations, feast, and bury the corpse, placing the deceased's spear in the grave, and his shield, and a few small sticks like forks, with some eggs and gram, on the grave, as an offering to ensure them good crops. I could get no reasons from them why their doing so would ensure them fertility of the soil.

They are not very martial at present, having been generally the party attacked and subdued by the other Nagas. They have very little trade, and not much inclination that way, being too fond of idleness to exert themselves for their own improvement; they cultivate small quantities of cotton, and exchange it for salt. Many of them have taken refuge in the Mikeer villages, and may in time adopt the industrious habits of those cultivators, but their unruly, independent inclinations would be a great obstacle to any attempt at improving them. Mohong Dejira now consists of about 50 or 60 houses; in former days it enumerated about 300. The emigrants have formed the villages of Bokolea and Nerondlea, and many are gone to Dhurumpore. The cause of their flight, it is stated, was owing to some Nagas a few years ago having killed two of their tribe; that may be partly the reason, but the itinerant character of the Cacharee, may have influenced them greatly. The Cacharees here, till within two years past, have been obliged to pay tribute to the Nagas of Sumoogoding, to preserve peace. The tribute consisted of a cow or bullock, and one maund of salt per annum.

The lands about here are of the finest description, some yielding very rich crops of grain, and can be irrigated at pleasure by a small rivulet which issues from the hills to the N., but the indolent disposition of the villagers (who are an admixture of Assamese and Cacharees) prevents their taking advantage of the fertility of the soil, large sheets of which remain uncultivated, which were formerly well cropped; but since the reduction of the village, and their union with the Assamese they have become great opium-eaters, and merely cultivate sufficient rice, &c. to afford them the means of subsistence. Some traders extend their traffic up to this village, and procure a tolerable supply of cotton from the Dhejuah Cacharees. There are few Indian products that could not be reared on the low lands around this part of the country, and the presence of lime, coal, and chalk about the vales, might prove of the utmost use to any manufacture or plantation which might be established, as the country becomes known and settled. Regarding the climate, I cannot say much from experience; but the diseases both amongst cattle and men, which have proved so fatal to those attacked by them in the northern parts of the Nowgong division, have not been known here, and this may allow one to conclude, that this part of the country is more salubrious than other parts.

No grain having arrived till the 13th, I was unable to move forward; when thirteen maunds having accumulated, I proceeded with half of the Shan Detachment (leaving the remainder to follow when more grain came up, as I expected its arrival every moment) to Dhemapore Nugger to which place I had requested Tularam Rajah to cut a road, having heard of the existence of the ruins of an old Cacharee fort on the Dhunsiri on my return last year, which nobody (with exception perhaps of one or two very old Cacharees belonging to Tularam) had seen. Crossing the Jumonah a mile or two distant from Mohong, we reached the Dhealow river, on which sheds had been erected for us, and were obliged to encamp, as I was told the second sheds were too far for us to reach that day, having started late, from the non-arrival of the coolies. The Dhealow is about ten or fifteen yards broad, and like most hill streams, shallow. The path was excellent, over a slightly undulating country; we passed a few clearances which had been deserted several years back, on account of the Naga feuds; the distance to this is about six miles; the appearance of the country wavy, with small rich alluvial plains at intervals.

14*th.*—Passed through the same description of country as yesterday, and was obliged to encamp at the second sheds, eight miles distant, on the Pikrong Deesa, the distance including our present march from this to Dhemapore, being too great for the coolies.

15*th.*—Passing over a small plain and some wavy ground, we found the path excellent till we reached the Looree, a small river, in the bed of which our route lay for three or four miles to within a league of Dhemapore; when we left it, and got upon some high country, which led us to the fine bund road skirting the walls of the ancient city. I was very much astonished to find so fine an old place, totally lost sight of by the Cacharees themselves, an oral tradition of which was merely in existence; but they attribute it to the fear they have always felt of going into these forests, which since the desertion of the place, have been overrun by wild beasts, and frequented only by plundering Nagas.

The remains of Dhemapore Nugger consist of some pillars of various patterns, a gateway, the ruined tower, or palace wall, and a small fort to the north, besides tanks both within and without the walls. The fortification is surrounded on three sides by a dry ditch, of about thirty feet broad, a bund, or camp, and a second ditch. The gateway is in a tolerable state of preservation, but the inner passage, or guard room, has given way, and lies a heap of ruins, on which the Nagaser and other trees grow. The pillars are in three parallel rows, two of which are of a circular form, and one square; there are ten in each row of the former, and twenty in the single row of the latter; many of them have been split asunder by trees falling on them, and shrubs growing from out of them; in one spot a large banian tree has entwined its roots over a fallen one; some of them have been worn smooth by the wild animals (elephants, rhinoceroses, hogs, &c.) rubbing themselves against them. One of the pillars appears as if it had been an instrument for the punishment of criminals. It resembles two long square pillars joined at the base, and gradually increasing in distance from each other, from two inches at the bottom, to several feet at the top. The form of the town, or palace enclosure, is an oblong square, lengthways facing the river, which is about 200 yards off. It was built by Chokradoz, 4th Rajah of Cachar,* but long subsequent to the erec-

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*RAJAHS OF CACHAR.

1 Oodi Bhim; the founder of the House;
his son,
2 Kartrick Chundro,
his son,
3 Beerdurpo;
his son,
4 Chokradoz;
his son,
5 Manik Chundro;
his son,
6 Phalgoo Durpo,
his son,
7 Hurrick Chundro,
his son,
8 Naronee Chundro;
his son,
9 Madub Chundro,
his son,

tion of Ghergong in the Jorhat district, the first residence of the Cachar Rajahs. It is stated that after being driven from Ghergong by the

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10 Oodok Narion;
his son,
11 Indra Bol;
his son,
12 Moyurut Doz: his brother,
his son,
Nychinggra,
his son,
Krete Chundro,
13 Gooroorod Doz;
his brother,
14 Ordoa Detee;
his brother,
15 Mokorod Doz;
his brother,
16 Tamruz Doz;
his son,
17 Sooroo Durpo;
End of regular line
18 Krete Chundro;
his son,
19 Ram Chundro,
his brother,
20 Lukee Chundro;
his nephew,
Hurree Chundro being an infant at the death of his father, Ram Chundro, his uncle, assumed the royal power.
21 Huree Chundro;
his son,
22 Kishen Chundro;
his brother,
23 Goovin Chundra, murdered in 1830.

Tularam claims descent from Soroodurpo, the 17th Raja of Cachar, thus
Soroodurpo—his brother—Ghumber Sing.

Racha Dow, Moodooram, Anundro Ram,
Kishen Churun, Doorga Ram, Seeb Ram, Govin Ram,
Tula Ram, Joy Ram,
Runget Ram,
Nohal Ram, Bundoo Ram,

NOTE.—Lieut. Grange does not inform us whence he derives his list of the Cachar Rajas. His description of their ancient abode will not fail to interest the readers of the Journal. It is curious to note this instance of singular change in the political and social condition of the Naga country, in connection with the discoveries lately made of the former existence of civilization in tracts now among the wildest in India. It is only thus that the difficulties which beset the antiquary and the historian in this country, can be appreciated. The materials are now in course of slow accumulation, which will assist some future Gibbon in giving such a history of India, as must, I fear, remain for years a desideratum in literature.

Assamese, Chokradoz settled on the Dhunsiri river, and built Dhemapore, but hearing of the approach of a famous Hindoostanee warrior, called Kala Par, who had been converted from the Brahmin caste to the Mahomedan faith, and had become a great destroyer of Hindoo images, he fled with the image of the tutelar god of the house of Cachar to Myhong, in the hills, where he buil[illegible] fort. Kala Par not finding his foe, pillaged the place, and withdrew to his country. On his retirement the Ahoms,[*] or Assamese, came to take possession of Dhemapore, but Chokrodaz not fearing his new enemy came down from his retreat in the hills, and meeting an Ahom Phokun, inquired of him the reason of the Ahomean invasion, to which the Phokun replied, that they had merely come to look at the country, and that the army had withdrawn, which answer satisfied the Raja; when however, in fancied security he and his people laid aside their arms and proceeded to encamp and cook, they were attacked by the Assamese who had been laying in ambush, and not being ready to receive their treacherous foe, were put to immediate flight. The Rajah, with the remainder of his men, succeeded in effecting his escape to Myhong, where he remained, and Dhemapore was deserted. He died at Myhong, as did several of his successors, and the court was afterwards removed to Kaspore in the plains. The country round Dhemapore has all the appearance of having been at a prior period well populated. On the right bank of the river are three large tanks, two of which were excavated by the Rajah and Ranee; they are twenty cubits deep, and with the exception of a break in one or two places in their banks, are quite perfect, and hardly a weed is to be seen on their surfaces; they abound with fish. The banks are heavily wooded, and I found several kinds of citron growing on them. The wild elephants and rhinoceroses had taken up their abode upon them, and use the tanks as their baths. The whole country in the vicinity is covered with forest, containing very fine timber of the following descriptions—Cham,[1] Tetachapa,[2] Ghunsiri,[3] Rata,[3] Toon,[4] Awal,[5] Hullok,[6] and Nagaser.[7] I am informed by Tularam and others, that the Nagas west of the Doyang river derive their origin from an union of the Cacharee and Naga tribes, and that in former days the Nagas were far away beyond the Doyang river. The Nagas themselves acknowledge an origin from the Cacharee tribe, and on that account they used not to decapitate the Cacharee prisoners they made, to obtain ransom (?) which they invariably did with the Nagas that fell into their hands. Their unusual custom of not acknowledging any regular chief amongst themselves, tends greatly to confirm that statement, as the Lotah, Nimsang, and other Nagas on the east of the Doyang river, I am informed, have regular chiefs, besides a chief over a number of villages. The scantiness of the present Cacharee population may therefore be accounted for by their having been partly absorbed in the surrounding tribes, and their emigrations to all parts of Assam.

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[*] Rather the conquerors of the Assamese (vide Asiatic Society's Journal No. 104) these warriors devastated Assam simultaneously with the Musselmans.

1 Artocarpus Chaplasha ? 2 Laurus ? 3 Laurus Sassafras ? 4 Cedrela Toona. 7 Mesua ferrea.

No. 3 is I believe a species of Camphora.—[N. W]

The Cacharees attribute the desolation of their country to (what they call) their innocence and simplicity of character, and the superior cunning of the Ahoms, of whose magic powers they have many traditional stories; certain it is, that Dhemapore must have been the seat of a considerable population in former days.

The appearance of the lands about, are of the richest description, and they have been much extolled by all persons who have seen them. The country is high, and not liable to be inundated by any rise of the river, with undulations and small hillocks at different places; there are a few marshes and low lands on the banks of the river, which are very rich, and well adapted to low land crops; but the products most likely to be suited to the higher growers, are tea, coffee, sugar, tobacco, cotton, wheat, &c, and all kinds of vegetables. There are a great number of animals of all descriptions about Dhemapore, and those that came under my observation, were the elephant, rhinoceros, tiger, buffalo, hog, and deer; there is also a great number of birds of many varieties of plumage, and several kinds of lizards.

There is a Mora Dhunsiri a short way to the south-east, along which we discovered by the cut twigs a wild animal's track, used by the Nagas, leading from Sumboogoding towards Tokophen, by which it is evident that they have hitherto been in the habit of communicating with that village, and no doubt have been one of the parties engaged in annoying the Rengma Nagas. The latter complain both of the

Lotahs and Dewansas, but more particularly of the former, whom they call Chokannew, and the latter Choquennew. The Dhunsiri river contains gold of a dark colour. I succeeded in procuring a few grains, through means of a gold-washer I took up with me, but the quantity procured held out but little inducement for him to continue washing on his own account. The depth of the river was not sufficient in the cold season to admit of canoes reaching Dhemapore, though no doubt they can do so at other seasons of the year. The breadth of the river within its banks up there is 160 feet. There are many deep holes in different parts of it, which contain many descriptions of very fine fish, and the Cacharees kill great numbers of them with a poisoning creeper they call "*Deo Bih,*" which they bruise and wash in the waters.

Having received intimation that no grain had arrived at Mohong since my leaving it, and the quantity I had brought on with me not being sufficient to authorize my moving forward (only a day's grain being in camp), I returned to Mohong to urge on the large quantity which had been despatched from Raha in November, but which from unforeseen difficulties had been detained at Sil Dhurmpore. I reached Mohong in two days, and returned to Dhemapore on the 17th, and grain arriving on the 19th, I was enabled to start from Dhemapore on the 21st, but not having a sufficient number of coolies to take the whole of the party on, I was obliged to leave the Assam Militia which had arrived from Jorhat behind, to follow me up when I sent back the coolies for them. The distance from Dhemapore to Sumoogoding I should say, in a straight line, would be about fifteen miles, but by the route I followed, not less than twenty-two or twenty-four miles, which I accomplished in 2½ days.

Having built a stockade independent of the villagers, and part of the Jorhat Militia having arrived under their Subadar, I left them in post here to guard any grain that might come up, and quitting Sumoogoding on the 2nd February, reached Razapamah or Jykamee that day, the distance being but six miles. We did not pursue the route followed by Captains Jenkins and Pemberton, but descended to the southern foot of the Sumoogoding ridge, and went along the stony bed of the Desem Unurue, or Kooki river, till we reached the eastern base of the low ridge on which Razapamah or Jykamee is situated. As we reached the village which stood about a quarter of a mile from the river Keruhee, an influential chief came down with all his war accoutrements on; upon my inquiring the reason of his being thus equipped, he said, had we intended any harm, they would have fought us. They had piled up stones on their small circular towers, by the path side, to throw at us as we advanced, which proves how ignorant they still are, some of them, of the effects of fire-arms. He offered me his house, and several houses of his party for the night. He informed me that the village was divided into two parties, and that he could answer for the peaceful intentions of his own party, but not for the other. He said he had suffered much since I had last seen him, having quarrelled, fought, and found his match in a fellow villager, who had burnt his house and grain, and made him almost a beggar. In the evening, over a brisk fire, I succeeded in obtaining some of their martial ideas; bringing his shield, which was covered over with the hair of the foes he had killed, and carefully unwrapping a cloth off two pieces of ratan covered with the hair of his sisters, he placed them on each side of his shield, and commenced springing about with very great agility, spinning his spear round all the time. He then showed me, with an air of very great pride, the two ratans covered with hair, and said that they could only be worn by warriors who had killed many of their enemies, and brought in their heads, who are then entitled to receive some locks of hair from each sister, tied on ratan, which they are obliged to wear on their shield, in the manner above described. They consider certain Nagas their natural enemy, over whom gaining any advantage would be great honor. On my inquiring who his enemies were, he very innocently replied, the Beren Nagas, and those about Simkir; his feud with the Beren Nagas having arisen from a quarrel he had had with some of the Nagas of that village, at the salt wells near Sumoogoding. On my telling him that I had come up on purpose to suppress the aggressions committed in that quarter, he replied that he was aware of it, and had not been out since I was last up on their hills, and that he had assisted the Dâk wâl, who had foolishly gone up after me. The latter case was true, but whether the former was, or not, was impossible to say; though as no aggressions from this quarter have been heard of this year, it is probably true. Leaving Jykamee on the 3rd, we followed the route by which Captains Jenkins and Pemberton came, for a short way, and then turning to the left, entered the villagers' cultivations, on which we found the tea tree growing in the most luxuriant manner, uncared for, and unknown; in the rice fields it springs up in all directions in fine bushes, from the roots of old trees which had been cut down by the Nagas in clearing their lands for cultivation; the leaves of the plants found in the rice fields were much broader, and of a deeper green colour (some leaves tinged with yellow) than those obtained in the forest. It grows in many places on the low hills in this neighbourhood, and appears a very hardy tree. The greatest size which the trees I saw attained, were from two or three inches in diameter and fifteen or fifty feet high; the jungle causing them to run up this way to get at the air and light. The country it is found in, is very like that about the environs of the falls of the Jumonah, where there is but little doubt that tea would grow equally as well as it does on the Naga hills. I am informed by a Burmese who was formerly on the frontiers of China, that in the districts of Taongbine and Taongmah, the Polong inhabitants cultivate nothing else but the tea tree, and that from one description alone four varieties of tea are obtained, which he described in the following manner—First kind, from the buds, called in Burmese *Shuabee.* Second kind, when two leaves only have shot forth, called *Kugengoo.* Third kind, when five and four leaves have shot forth, called *Kugeyenka.* And the fourth kind when in five and six leaves, called *Kyeot.* The latter is drank only by the common people. In appearance it is exactly the same as that found about Jykamee. The hills on which the Polong people live, are much higher than those we discovered the tea on in the Naga hills.

Passing over these low hills, we came to a small plain, on which we found ginger growing wild. It was quickly dug up by the Shans for medicinal purposes, who said it was to be found growing in the same state, only in the Singhpo country. Crossing several feeders of the Desem or Unurue river, we ascended to the village called by the Muhipoorees, Ookusuha, and by the Nagas about this part, Terriamah, or by the Nagas on the Cachar hills, Umponglo. The villagers, as they did last time I passed their village, offerred us no opposition, but showed us a place to encamp upon, and assisted to clear away the jungle for that purpose, for which I gave them presents. There is no good ground near the village for encamping on, but before ascending to it there is a small stream on which Captains Pemberton and Jenkins formed their camp, which is a good place for halting at coming from Jykamee, and prior to crossing the great range. There is also another spot beyond the ridge Terriamah is situated on, which is immediately beneath the great range on the Desem or Unurue river.

4th. February. Ascended the great range by the path followed by Captains Jenkins and Pemberton. The ascent was extremely steep and harassing to the coolies, and we did not reach the small river beneath the Haplongmee, till 3 P. M. Haplongmee is called by the Nagas about here Konomah, which is equivalent to the Sinpalo of the Nagas about Beren, and the Cachar hills.

5th. We started from Haplongmee in search of the Muniporee detachment, which was to have met us there, and encamped on the Tobool or Tzupfoo river, in the fence erected by the Munipoorees on their return route; but my party only taking up one quarter of the ground they did, I was obliged to make the fences much smaller. I calculated the force of the Munipooree detachment at 400 men, judging from the extent of ground it covered. The Nagas after promising to show us the route to the place where we might find the Munipoorees, or at any rate to the next village, began to slip off one by one, after we had moved a short way from their village.

6th. Passing a short way up the bed of the Toobool, or Tzupfoo river, we turned to the right, and ascended a slight ridge. The country about this is extremely rugged and repulsive in appearance, being composed chiefly of high rocky ranges, with but little flat ground at their bases. The sides of the ridges are covered with low bushes, and small quantities of grass, and here and there a stunted fir or two. I saw some apple trees which had been planted by the Nagas; also, in the vale in which we encamped, willows growing along the ditches, as in parts of Europe. The climate I should say was good, it was moderately warm in the day, and cold at night, with sharp hoar frosts on the ranges. All the water in our mugs and pots was thickly frozen during the night we remained at this place.

7th. Not thinking that I should find the Munipoorees by advancing further, after the misrepresentations we had received, I turned to retrace my steps to Konomah or Hoplongmee, hoping to be able to make a detour and visit Ikare and Singpagee; and proceeded down to our former encamping ground on the Toobool, or Tzupfoo river. The fences and huts had been destroyed by the Hoplongmee Nagas, but we soon erected others.

8*th*. Advanced to the heights before entering Hoplongmee. I found some difficulty in procuring information regarding the customs of the Nagas of these parts, on account of their suspicious character, and fear of answering my questions, which they think might tend to discover some of the exceeding cunning habits which they possess. They are very fond of argument, and have recourse to it immediately they become aware that they are not able to cope with their enemy *viet armis*, and do not scruple to resort to the most absurd falsehoods to try and intimidate their opponents.

They are, like most mountaineers, very uncleanly, and their habitations are seldom or ever cleared of the filth of ages. The houses are large, and are generally divided into two apartments, in which they live and keep their grain, animals, &c. One family only resides in one house. When not obliged to work, the men are lazily inclined, and spend their mornings generally in sipping a species of fermented liquor, but when pushed to labour, they are very active, and work very cheerfully to some merry song. Their reaping song in particular struck me as being exceedingly wild and pretty. They form a line of men, women and children, and advance together, singing in chorus and cutting down the crop. They cultivate several kinds of vetches and peas, and have four or five species of rice, some grown on the mountains, and some in the vales. The latter are produced on lands that have been shaped out in steps and are irrigated by the innumerable streams, rivulets, &c. found at the base of nearly all the mountains.

They breed cows, pigs, goats, fowls and dogs, and eat of nearly every living animal; in fact I do not know of a single exception, rats, snakes, monkeys, tigers, elephants, being all equally tasteful to them. I was informed that Konoma, or Hoplongmee, is composed of 300 houses, half of which are Angamee and half Dewan Nagas, but they unite and join in all pillaging expeditions with the two Angamee villages of Mozomah (Ikaree) and Khamona (Impagee), both of 500 houses strong. The three villages, to keep up their tie of alliance, are required to give a united feast once a year, each village sending a cow and other articles for the occasion. The villages at the northern base of the great range are an admixture of the Angamee and Dewan tribes. The Angamees are known to the Nagas by the name of *Khunomah*, and the tribe known by the Cacharee name of Dewansa, is called *Thungeemah;* a difference must be observed between the names of Khunomah and Konomah, the latter being the name of the village of Hoplongmee, and the former of the Angamee tribe and of an Angamee village. I could not obtain any accounts of the origin of this singular tribe, who appear to have been a small colony established in the midst of a number of tribes, who, from their daring and martial character, have held all the surrounding tribes in awe, and after increasing itself into three or four villages, has completely gained a supremacy over its neighbour, and although the latter boasted of a much greater number of villages, though not so large as the Angamees, and a larger tribe, they are not able to attack them in return, from their want of unity and confidence. The attacks of all these wild tribes are looked upon in no other light than authorized martial exploits against their natural enemies, which singular to say, they consider all Nagas not of their own tribe. Now however that they are attacked by them in return, they are becoming less inclined to continue their former distant mauraudıng expeditions, and confine themselves merely to the revenge of any injury they may have, or fancy they have, received. The Dewan tribe, I imagine has obtained that name from having formerly either resided on, or come from beyond the Dooyang or Dewan river

From the village of Yang, another tribe springs up, whose dialect is different from either the Angamee or Dewan Nagas, and who are called by the former tribe *Zamee*. Beyond the Doyang, other large tribes of Nagas exist; Lotah, Nemsang, &c. &c. these tribes I am informed differ from those to the west of that river, and are under their respective chiefs, whose authority they acknowledge, which is contrary to the system of the Thuggeemah (Dewan) and Angamees. The latter tribes when about to undertake any expedition, assemble the aged and fighting men of their villages to discuss the matter over, and the greatest bullies generally succeed in getting their wishes adopted.

The Nagas of these parts acknowledge the power of three gods. The first is known by the name of *Rapoo*, to whom they sacrifice cows and bulls only. He is the chief, and has the power of killing or curing. The second is called *Humaadee*, to whom they sacrifice dogs; and the third *Rampaow*, to whom they sacrifice cocks and offer liquor. They said, they had all three the power of killing or curing in different diseases. Their marriage ceremony is nearly the same as that of the Rengma Nagas.

Landed property is hereditary, and is cultivated for ages by the proprietors. In building houses, neighbours are required by custom to assist each other, for which they are feasted by the person whose house they are building. On deaths of fathers occurring, the property is divided, and all the family share, the house going to the eldest son, unless he has one of his own, when the mother retains it.

The barter value of different articles at the village of Hoplongmee was as follows, a cow is valued at 10 or 12 conch shells.

A pig	,,	,,	2 ditto.
A fowl	,,	,,	1 packet of salt.
A goat	,,	,,	2 conch shells.
A male slave	,,	,,	1 cow and 3 conch shells.
A female ditto.	,,	,,	3 ditto, and 4 and 5 ditto.

The children of slaves are slaves.

The climate of Hoplongmee is in the month of February very fine, the days are mild, and the nights very clear and cold, and a strong hoar frost rests on the ground till 8 A.M.—I found wild raspberries growing on the hills in the vicinity, and some nettles resembling those found in Europe. The hills are of considerable altitude, and those in the immediate neighbourhood of Hoplongmee covered with stunted grass, with wooded patches on their sides. The alpine scenery is extremely fine, and few sights could exceed the grandeur and fearful appearance of a storm rolling slowly through these mountain chains. We experienced some very high bleak winds on them.

The Nagas have several ways of prophesying the success of any expedition they are going on. One is by cutting a soft reed with their spear head into flat pieces, and if the slices fall to the ground one way, success is sure to fall in the opposite direction intended; according to the number fallen that way, so will be the proportion of ill luck; success by another mode is by the means of the flight of a cock. If he flies strong and far, it is a favourable sign; but if, on the contrary, he should fly weakly, and to no distance, ill luck is sure to ensue. In going on an expedition, if a deer cross their path they return, and defer their trip till some other day. This same superstition prevails also amongst the Shan tribes, with the slight difference, that if a deer cross their path from right to left, they proceed, but if in the opposite direction, i. e. from left to right, they return immediately, considering it a warning not to proceed upon any expedition.

Leaving about 9 A. M., we crossed the great range, and after a very fatiguing march, did not encamp on the Unarue or Desem river till dusk of evening; we this day reached a stream, three miles to the south of Jykamee, the distance from that village to the base of the great range being rather too far for the coolies.

15th February—Quitting at 6½ A. M. an hour's march brought us to Jykamee. We encamped this day on the Desem river, at the southern base of the Sumoogoding hill.

We discovered the tea tree growing in the neighbourhood of camp in a very luxuriant manner, the country is of the same description of low hills, as found in the vicinity of Jykamee.

19th. Marched round the village, to avoid going through it, as the Nagas seemed to have much objection to it, and met some Nagas from other villages.

20th. Leaving Pepamee, and proceeding for about a mile, we came to some trees, in which I halted the party; we encamped upon a small stream about four miles from Pepamee. In the evening we observed their beacons alight (on high hills) in all directions, which I found out were signals of our position, and movements; the number of beacons burning at the same time, being the signal of our advance, retirement, or halting place; the path was very good, over a ridge of low hills.

21st. Our progress was very slow, and although the distance to Juppmah was four or five miles, we did not arrive there till 3 P. M. We entered the village through a narrow lane, with a stone wall on either side, and a bamboo trellis work over it, and a single plank of considerable thickness as a door. This village was a very old one, of about 300 houses, although report always augmented the number to 500; it is composed of half Angamee and half Dewan Nagas. Some of their stools or bedsteads were very large, cut out of a single tree, and they held them in great esteem; their iron instruments being of the most inferior description, it must have taken them considerable time and labour to cut out the trees. We found a great quantity of rice in the jungle, of four or five different kinds.

The Rengma river winds past the western foot of the hill this village is situated on. On a hill on its right bank, bearing from Juppmah 55½, is the village of Bephomee. The country about this is composed of good sized mountains, though of much less altitude than those of the great range, averaging from two to three thousand feet high. The Sumoogoding range, after admitting the Desem river through it to the east of that village, continues in a north-eastern direction till it is again broken by the Rengma river passing through it, and it finally ends at the Doyang river; the hills on the eastern bank of the latter river extending down its course to about the parallel of latitude of Mohong Dhejooa. The mountain on which Juppmah is situated, overlooks the Sumoogoding ridge, and the whole country is visible up to the Rengma Naga hills, to the west of the Dhunsiri; the eye extending over a vast dark looking forest plain, with the course of the Rengma winding through it, till it is lost sight of in the distance. The hills to the east, between the Rengma and Doyang river, are of a far less height than those to the west of the former river, and run in parallel ridges, east and west. The largest mountains lay in detached ridges to the south of the great range.

It appears to me that the latter range would form a well defined boundary between Assam and Munipoor, running in an almost uninterrupted straight line from the Meghpoor valley up to the Rengma river, a slight bend only taking place to the southward, of not much consequence, about Berem.

I regret extremely I was not able to prosecute my examination of the country further to the eastward, which I was obliged to give up on account of the delay that I had been subjected to in the plains, and the lateness of the season at which I entered the hills. Sickness had commenced in camp, which made marching very harassing with the limited means I had of conveyance.

27th. After much difficulty in providing conveyance for the sick, I left this ground, and returned by the path we had come.

We encamped in our former fences of the *20th.*

On the *28th*, reached Meyepamah; and on the *29th*, arrived at Sumoogoding, and found that the whole of the stockade, grain, and property left behind, had been destroyed by fire, through the carelessness of a sepoy.

2nd March. Deeming it imprudent to trust a post at such a distance from any civilized population with only a few maunds of grain in a weak stockade, and fearing the ill will of the villagers, I brought the whole party down to Dhemapoor, where we found 200 maunds of grain assembled.

A short Memoir of Mechithar Ghosh, the Armenian Legislator. By
JOHANNES AVDALL, ESQ., *M.A.S. &c.*

Armenia, that favoured portion of the globe, famed in the page of ancient and modern history both for its physical resources and political changes, is generally admitted to have been prolific in giving birth to men of vigorous minds, and no ordinary attainments, maugre the lamentable disasters consequent on the overthrow of the dynasties of its kings, and the invasion of the barbaric hordes, by which it was overrun in the various periods of its history.

The subject of this memoir, Mechithar Ghosh, was born in the Armenian era 592, corresponding with *Anno Domini* 1143, in the city of Ganzak, once the capital of Armenia Major, situated between the sea or lake of Gelam and the river Kúr, or Cyrus. While in his teens, he devoted himself to the study of the Armenian language and classical literature, under the able and paternal tuition of the learned friar Johannes of Tavúsh. His heart burned with a love of knowledge, and his whole attention was literally absorbed in the acquisition of the learning of his country. The death of his preceptor, which imbued his mind with a tinge of melancholy, and subjected him to a temporary dejection of spirits, was not allowed to cool his ardour in the pursuit of his favourite study. From an association with learned men of all ages and all grades, he derived an exhaustless fund of knowledge, and was thus enabled to enrich his mind with the gems of science and literature. Not content with the intellectual riches of which he was already possessed, he repaired towards the frontier of the Black mountain,(1) then the acknowledged centre of all Haican(2) learning and science, and the reputed resort of all men of letters and genius, with the view of extending his mental acquirements, and attaining to the highest possible eminence amongst his contemporaneous literati of Armenia. Here he was received with the greatest kindness, and the most marked attention, by his kindred spirits; and ultimately had the gratification to see his laudable endeavours crowned with the most triumphant success. He had the merit of ranking in the list of the most learned and erudite of his age, a consummation to which his whole ambition aspired ! The extent of his learning could only be equalled by the degree of austerity which he had imposed on the mode of his life. He was highly esteemed by all, for the urbanity of his manners, and rigidness of his moral discipline. After a stay of some years in the society of men eminent for their love and acquisition of wisdom, he went to the city of Carin,(3) (the modern *Erzerúm*) preparatory to returning to Ganzak, the land of his birth. No sooner had he commenced tasting the sweets of the company of his relatives and nearest friends, after a long separation, than he had the misfortune to feel the disasters from the inroads of the Scythians, by whom that part of the country was cruelly harassed and devastated. This induced him to quit his native soil, and to proceed to the province of Khachen, where resided Vákhthánk, the prince of Hatherka,(4) under whose protection he expected to enjoy comparative ease and freedom from the molestation of unbelievers. Here he meditated the propriety of devoting himself to a monastic life ; and having determined on this step, he bade adieu to his protector, and repaired to the province of Kain, where stood a convent, known by the appellation of Ketick.(5) He took shelter within the precincts of this monastery, and joined its inmates with a full acquiescence in the rules of the institution.

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(1) Սեաւ Լեառն in Armenian.

(2) Haic Հայկ was the grand progenitor of the Armenians, who are also called *Haics* Հայք, after his name.

On the demolition of that convent by the incursions of enemies, he constructed a new one on the spot, called the "Valley of Tanzút."(6) He also built in this place a church, consecrated by the name of St. Gregory the Illuminator,(7) and a small chapel dedicated to St. John the Baptist.(8) Subsequently, on the increase of the population in that place, he erected another church of solid stone, and on a more extensive scale, which was consecrated by the name of the holy Deiparous. The erection of this sacred edifice was finished in the year 1191. The convent, newly constructed by him, received the name of Ketick,(9) which appellation was afterwards applied to him, in commemoration of his being the founder of that monastery. He was also known by the cognomen Ghosh,(10) which appellative was added to his Christian name, in consequence of his having very little, or no beard; this circumstance is corroborated by the testimony of his cotemporary and countryman, Kirakus(11) Ganzakensis, who had the honour and pleasure of his personal acquaintance and friendship.

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(3) Կարին Carin is the name of the city of Erzerúm, in the classical atlas of Armenia.

(4) Վախտանկ իշխանն Հաթերքոյ in Armenian.

(5) Գետիկ or Գետկայ վանք in Armenian.

(6) Tanz Տանձ signifies *pear* in Armenian. The valley abounded in pears, and was therefore called Տանձուտ Tanzut, or *full of pears.*

(7) Սուրբ Գրիգոր Լուսաւորիչ St. Gregory the Illuminator flourished in the third century, and evangelised Armenia.

(8) Սուրբ Յովհաննէս Մկրտիչ in Armenian.

Mechithar Ghosh is known to have been the author of numerous works of sterling merit. He wrote a book on human nature, in the shape of an address from Adam to his sons, and from Eve to her daughters. He also wrote several treatises on the Christian faith, and on the Communion of the Altar. His pastoral and admonitory epistles are also extant, and afford a proof of his unassuming piety and philanthrophy. At the end of this epistolary work he says, "If I have ever erred in addressing these monitory letters to my countrymen, or unintentionally offended those whom I intended to benefit, I am most cordially penitent for my error, and readily ask their indulgence and forgiveness." He is also said to have written a commentary on the book of Jeremiah, and a great many sacred odes and poetical pieces. Some of the latter have been handed down to us, and are pronounced to be sufficiently elegant and sublime, to stamp him as a poet of no ordinary kind. His composition of "Choice Fables," is a combination of the *utile dulci*, and indicates his capacity to unite a great deal of instruction with much amusement. Of all the works of Mechithar Ghosh, the latter is the only one that has ever been printed. It was published by the Mechitharistic(12) Society of Venice, on the 18th of January 1790. The chief recommendation of these Fables is, their originality, for which they are considered to be far superior to the "Select Fables of Vartan," published at Paris in the year 1825, with a French translation, by that most indefatigable and highly distinguished orientalist, M. J. St. Martin, under the auspices of the Asiatic Society of that place.

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(9) The subject of this memoir was also called Մխիթար Գետկայ Mechithar of Ketick.

(10) Ghosh Գօշ in Armenian signifies Քարճ or Քաղց, vulgo Քօսէ, and in English, *beardless*, or *one having very little beard.*

(11) Կիրակոս Գանձակեցի in Armenian. Kirakus is from the Greek word Κυριαχὸς, and its adoption as a proper name, is very common among the Armenians.

(12) This Society was founded by Mechithar of Sebastia, in the early part of the eighteenth century. Its members have been pre-eminently successful in promoting the revival of Armenian literature, and the publication of numerous works of considerable merit.

But the crowning literary production of this great Leviathan of Armenian literature, is the Code of Laws which he concocted, framed, and promulgated, in the year 1184, and which has immortalised his name as a legislator and first-rate author, in the recollection of posterity. In the preparation of this law-book, he availed himself of the assistance of Frater Josephus and Frater Paulus, both equally distinguished in the page of our national history, for their literary attainments and deep research. The laws comprised in this Herculean work are both civil and ecclesiastical, and admirably adapted to the state of the Armenians of those days. Mechithar Ghosh shines more conspicuously in the character of a legislator than in that of a divine, a disciplinarian, an annotator, a poet, or a fabulist. I have treated, at great length of the code of this eminent legislator, in my "Essay on the Laws and Law-Books of the Armenians,"(13) and furnished some specimens of the laws contained therein. I must here repeat, what I have already stated elsewhere, my deep regret at the total absence of a printed Armenian standard Code of Laws, to the great inconvenience and difficulty of the Armenians located within the pale of the Honorable Company's courts in this country. Authentic and genuine copies(14) of the law-book of Mechithar Ghosh, are to be found in the extensive library of the Mechitharistic Society of Venice. Want of funds to meet the expenses of printing, if I am correctly informed, is the only cause of the non-publication of this valuable work of antiquity; which, if published, would unquestionably be considered one of paramount interest and utility to the Armenian nation in general, and to the Armenian colonists of Bengal in particular. If the Armenians living under the jurisdiction of the Zillah courts of this country, be really willing to promote the security of the property of their children, let them step forward with their purses unstrung, and, with a spirit of true patriotism, bestow this posthumous work of their renowned legislator of the twelfth century, as an invaluable boon on their expatriated countrymen of British India.

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(13) Which will shortly be published.

(14) Since writing the above, I have been credibly informed that correct and elegantly written copies of this book are also kept in the library of Etchmiatchin. It is to be hoped that the work in question will speedily be published, either at Venice or Etchmiatchin.

But to return to the immediate subject of this brief memoir. In almost all national meetings, and in all synodical proceedings, Mechithar Ghosh took a willing and active part. He was present in the grand council, convened in 1178, at Hiromclah,(15) having for its object the formation of a union between the Armenian and Greek churches. His presence was also considered to be indispensably necessary in the two synods, respectively assembled at Lori and Ani, in the province of Shirak, between the years 1205 and 1207, for the express purpose of reconciling differences and dissensions, provoked by uneasy and turbulent spirits. He was desired by a particular invitation, bearing the signatures of the principal ecclesiastical dignitaries, to favour them with his attendance. He attended the council of Lori, but sent an apology for his inability to be present in the synod of Ani. Advanced age, aggravated by bodily infirmities, was the unavoidable cause of his absence from that assembly. He sent, however, his vote in writing, expressive of his acquiescence in the proceedings of the majority of the meeting. Not quite contented with this, and unsuccessful in bringing the affairs of the meeting to a satisfactory termination, the assembled Bishops persuaded Mechithar Ghosh, by repeating their solicitations in writing, to honour the assembly with his presence. The meeting stood adjourned, waiting his arrival with no small degree of anxiety. "Hasten," said they in their letter, "to our succour, for we are sadly divided; and the division cannot be healed but by a sweet word from your lips. Your apology for your advanced age and bodily infirmities, is inadmissible. Should you be visited by death on your journey hither, we shall hold your memory in reverence by a suitable and lasting monument, worthy of the public virtues of the best of our divines. Only hasten to our succour!" Mechithar Ghosh complied with their wishes, however fatiguing and wearisome the journey to a valetudinarian of his age and description. His presence at the assembly had an electric effect. A short address from him, judiciously and temperately worded, calmed and soothed the assembled multitude. The differences and dissensions were buried in the waters of Lethe; peace and unanimity restored; and the assembly dispersed to the satisfaction of all parties.

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(15) **Հռոմկլայ** in Armenian. The etymological signification of Hiromclah is the *castle of Rome.* It was an impregnable fortress in the twelfth century, and belonged to the Count of Jocelyn during the days of the Crusaders.

Such a wonderful character was Mechithar Ghosh; and so universally esteemed, admired, honoured and respected by his countrymen, for his public and private virtues. The qualities of his mind kept pace with the qualities of his heart. He attained to a good patriarchal age, and terminated his earthly career, *Anno Domini* 1213, and his remains were interred in the convent of Ketick, with every demonstration of honour and affection becoming the memory of so great and useful a man.

He had a great number of pupils, several of whom survived him, and rendered themselves distinguished by their literary productions, and acts of public utility. I cannot better conclude the memoir of this very learned and truly excellent man, than in the words of his countryman and contemporary, Kirakus Ganzakensis:—

Զսմանէ գրէ Կիրակոս. "Բազումք էին որք աշակերտեցան 'ի Նմանէ
"վարդապետական բանին, քանզի համբաւ իմաստութեան Նորա հռչա-
"կեցաւ ընդ ամենայն տեղիս, և գային առ Նա յամենայն կողմանց. քան-
"զի ըստ անուան իւրոյ մխիթարէր զամենեսին . . . . . բանք Նորա ար-
"դիւնականք և լի շնորհօք . . . վասն այսպիսի համբաւոյ բազումք որք
"էին 'ի կարգի վարդապետ̃ ծածկէին զինքեանս, և գային 'ի կարգի
"աշակերտաց կալով. ուսանէին 'ի Նմանէ, և առնուին վերստին հրաման։
"Եւ բազումք յաշակերտաց Նորա հասին 'ի պատիւ վարդապետական։"

"There were many who availed themselves of the benefit of his indoctrination. The fame of his learning had spread far and wide, and attracted pupils from all parts of the country. He comforted them all, pursuant to the literal meaning of his own name!(16) His words and instruction were beneficial, and full of merit and grace! Owing to the celebrity of his name, many who had been invested with the degree of professorship, scrupled to acknowledge their own dignity, and went to him with the profession of pupilage on their lips. They were indoctrinated by him, and newly received order. Several of his pupils had the merit of being honored with the doctoral degree."

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(16) Mechithar Մխիթար etymologically signifies *comforter, comforting, comfortable, comfort,* in the Armenian language.

Letter, forwarding a paper on the formation of the Museum of Economic Geology of India, from Captain TREMENHEERE, *Engineers, to* H. TORRENS, ESQ. *Secretary to the Asiatic Society.*

Calcutta, 27th January, 1841.

I have the honour to state for the information of the President and Members of the Asiatic Society, that the collection of specimens forming the basis of a Museum of Economic Geology, is placed in the room which the Society has been pleased to appropriate to that purpose.

I regret that my stay in Calcutta is so short that I shall be unable to complete the labelling of the specimens before my departure for Moulmein. The labels are, however, all prepared, and Mr. Piddington has kindly undertaken to place them near to each specimen, so as to render them distinctly legible. Corresponding printed numbers, which are also ready, are to be affixed to the specimens themselves, the numbers now attached being only of a temporary description.

To provide, as far as possible, for obtaining specimens of Indian mineral products, &c., and to explain the principles and objects of a Museum of this description, I have prepared a memorandum, in which I have endeavoured to describe the substances which it is considered desirable to collect, and the indications by which localities, which are likely to afford them may be traced in such a manner as to require little or no previous acquaintance with mineralogy or geology, to render contributions useful and illustrative.

A similar communication has been made to the Government of Bengal, with a view of increasing the collection of specimens suited to the objects proposed; and should your Society concur in the suggestions contained in the paper herewith enclosed, its communication to the corresponding members of your Society, may prove of service to the Museum of Economic Geology, now forming.

It is my intention, in compliance with a suggestion from Government to that effect, to maintain a correspondence, during my absence, with the Curator of your Museum, by which, and by personal communication, on any occasional visit which I may make to Calcutta, I shall be able to arrange for the disposal of specimens, which the Curator may receive, in furtherance of the views herein alluded to.

MEMORANDUM.

Numerous specimens of coal, and of ores of the useful metals, recently received by Government from the Court of Directors, have been placed, with the consent of the Asiatic Society, in one of the Society's rooms, at their house in Park Street, where they are arranged for public inspection. These specimens form part of a collection, to which it is intended that additions shall be made, until a complete series, exhibiting the mineral products of Great Britain shall be obtained; exemplifying at the same time, their modes of occurrence in rock formations, and the processes of converting the rough ores to the metallic state. With this view communications have been opened with the Director of the Geological Survey of England, for the supply and interchange of specimens suited to the objects proposed.

Simultaneously with these, it is proposed to collect, with the aid of Engineer Officers, Officers of the Revenue Survey, and by donations from individuals interested in the subject, specimens of similar products and processes of manufacture of this country, which will be arranged in a manner convenient for comparison with the foregoing, and for exhibiting at one view the mineral resources of India.

To these will be added specimens of soils, and other substances, showing the application of Geology to Agriculture; specimens of materials used for public buildings, and for roads; models of machinery adapted to mining and agriculture in India; and, lastly, records of mining operations which have been undertaken, or are still in progress.

Materials will thus be obtained, at no distant date, for a Museum designed to illustrate the application of geology to the useful purposes of life, to be entitled "The Museum of Economic Geology of India."

The Museum already possesses a series of specimens of British coal and ironstone from the South Wales and South Staffordshire districts, from the forest of Dean, and from Newcastle. In British tin and copper ores, chiefly from Cornwall, the collection may be considered complete.

The collection of specimens, exhibiting the various stages of metallurgical processes, comprises illustrative series of iron-smelting, and manufacture, as practised in South Wales; of the tin smelting of Cornwall; and of copper smelting, as practised at Swansea. To these, it is intended to add the Bristol mode of manufacturing brass and the new and old methods of reducing zinc from its ores. Other mineral substances employed in the arts and manufactures will also be included, such as those illustrative of porcelain, common earthenware, pottery, fire bricks, and other manufactures from clays and their compounds, and of metallic oxides and earths employed as pigments, showing the mode in which they may be usefully and permanently associated with each other; as well as a series showing the important manufacture of glass.

In the agricultural section, specimens of Indian soils and subsoils, or subjacent rocks, will be collected, with information of the mode of treatment and usual produce of the land, together with the conditions of exposure and meteorological influences to which it is subject. By analyzing such specimens, the connection of agricultural products with the chemical and physical properties of the soil, as well the mineral and vegetable substances most fitted for increasing the fertility of the land, will be ascertained; and the results being compared with others similarly obtained in this, or in other countries,* correct principles will be established, either for the introduction of new products of cultivation, or for the improvement of those already existing. The substratum of soils being generally an element in their relative fertility, an inspection of these alone would lead to suggestions of much value to the cultivator, and to a knowledge of the geological character of the upper surface of the country from which they may be taken.

Another section will comprise stones, slates, marbles, porphyries, ornamental granites, and other building materials, as mortars, cements, and other artificial compounds, applicable to architectural and engineering purposes.

A focus will thus be presented, to concentrate all information relating to the Economic Geology of India, and it is considered that a collection of natural products, such as it will contain, may serve to point out localities which would be worthy of attention; and by exciting the interest of the private speculator, tend to develop the mineral and agricultural resources of the country. An efficient means would also be afforded, of imparting instruction to native youths, whose services may be made available towards the gradual accomplishment of the objects proposed, with reference to the vast extent of territory which is open to investigation.

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* We have learnt, while this Memorandum is passing through the press, that a far wider interest is taken at home in the improvement of India in connection with its agriculture, then has ever heretofore been the case. Our acting Curator, Mr. Piddington, having requested Mr. Stikeman the Secretary to the East India and China Association to procure for him some sugar soils from the West Indies, for comparative analysis with those of India, the Mauritius, &c. Mr. Stikeman applied to Lord John Russell, who, upon the recommendation of Sir John Cam Hobhouse, has kindly obtained an assortment of soils from the West Indies, and their arrival here is daily expected.—Ed.

It will be perceived from the above, that this Museum is not intended for the reception of specimens of rocks or fossils to illustrate points of theoretical geology, but to exhibit those substances occurring occasionally in the solid crust of the earth and others, which are applicable to the useful purposes of life.

Mineral substances.

To those therefore, who may be requested, or who may be desirous to afford assistance in furtherance of the objects here set forth, it will be sufficient to state, that, any mineral or metallic substances, accompanied by specimens of the rocks in which they are found, with descriptions of locality and mode of occurrence, will be of service to a Museum of this description. The fissures and crevices of rocky strata, either along shores, or in vallies and ravines, should be examined, and indications will often be found in water courses and river beds, whereby metallic ores may be traced to the source from whence they have been abraded. Tin, gold, and platina are usually found in such situations; small rounded masses of the former, denominated stream tin, being scarcely distinguishable, save by their higher specific gravity, from common pebbles. The sands of rivers should be sometimes washed, as should also the alluvial detritus found in valleys or beneath the surface of level plains. Indications of copper are often afforded by a ferruginous and somewhat friable substance near the surface, specimens of which are desirable, as they serve often, with practised miners, to point the probable prospect of ore beneath. The vicinity of rocks, coloured green, blue, &c. may also be worthy of examination.

If with such specimens, the probable thickness of the stratum of rocks in which they occur, its dip, including the angle of inclination to the horizon, and direction of the beds by compass, be given, as well as the direction of any fissures that may be observed, it will enhance the value of the information afforded. A convenient size for specimens, is about three inches square, and about an inch in thickness, those of the accompanying rock, may be four or four and a half by three inches, and about the same thickness. They should be carefully numbered, both on the specimens themselves, and on the envelope in which they are wrapped; one copy of the list to which the numbers will refer, should be transmitted by dawk, and another placed in the box with the specimens.

Building materials.

Specimens of slates, with the dimensions, quantity, and rate at which they can be obtained; also of marbles, and building stones, cut into six inch cubes, will be desirable. The expense of quarrying and of transport to the nearest water conveyance should be detailed. One side of the cubes should be left to exhibit the exposed or weathered surface of the rock, the others roughly chiselled. The cubes of marble may be polished, except on their under surfaces.

Examination of springs.

The quality of water at the issue of springs, and the sediment deposited by them, should be particularly noticed, as they rise to the surface, generally, at some fault or dislocation of the strata, and will probably be imbued with matter derived from the metallic bodies with which they may have been in contact. Thus, water percolating through a bed of coal has often its surface coated with a thin film of oxide of iron, derived from the decomposition of iron pyrites, diffused through the coal. When traces of coal are discovered, it would be very desirable to transmit pieces of the strata of rock with which it is supposed the coal is associated, stating the extent of surface which the deposit is believed to cover, and the depth at which it is found; accompanied, if possible, by a vertical section, with figured dimensions of the accompanying beds.

Operations of mining and reduction of ores.

Descriptions of native mining operations, and complete series of specimens showing the processes followed in the reduction of ores, in their various stages of progress, to the metallic state, will be highly valued, when accompanied by explanations of the modes of procedure.

Specimens of soils should always be forwarded in connection with communications, and inquiries of agricultural interest.

Soils.

Soils being generally the upper decomposed portions of subjacent mineral substances, whether hard rocks of various kinds, or clays, marls, sands, &c., mingled either naturally or artificially with vegetable and animal matter, it becomes very desirable in collecting specimens of them, that they should be accompanied by others of the hard rocks, clays, marls, sands, &c., on which they rest;

so that by careful analysis of the whole, with due attention to climate and the other obvious conditions to which they may have been exposed, some general and useful results may be brought to light, respecting the soils best fitted for the growth of the various plants usually cultivated in this country.

In selecting soils for the Museum of Economic Geology, care should be taken to obtain fair average specimens of the localities whence it may be considered desirable to send them; and to insure the true subsoil, subjacent hard rock, clay, sands, &c.; specimens of the latter should be obtained as near as possible beneath the spot whence the soil may have been so selected, for it sometimes happens, that the soil of a field varies in places, from resting upon different kinds of sub-soils.

The soil above hard rocks is not unfrequently separated from them by broken angular fragments, the half-decomposed portions of such hard rocks; specimens therefore of sub-soils, or subjacent mineral substances should, in such cases, be taken from the solid hard rocks beneath, and not from these fragments, which have commonly suffered too much decomposition to exhibit the real chemical composition of the rocks themselves. These angular fragments must not be confounded with gravels, sometimes overspreading hard rocks, to the depth of several feet, and chiefly or wholly composed of rounded pebbles, mixed with earthy, sandy, or clayey matter, the whole being often derived from a distance; for such gravels then form the true sub-soil, and the soil above them would partake of the character of the earth, sand, or clay, mixed with the pebbles, with the addition of the decomposed parts of such of the latter, as may disintegrate by the effects of the weather upon them.

The quantity of soil taken as a specimen, should weigh about a pound; it should be well dried and tied up in a canvass bag, labelled to correspond with a memorandum, in which the general agricultural produce of the spot, whence the specimen was taken, should be noted; the kinds of manure known to have been used upon it mentioned; the amount of grain or other crops per beegah stated; the dimensions of the beegah, and the best kind of produce which has been hitherto obtained from it, specified. A loose label should also be inclosed within the bag to guard against accidents. As so much depends on climate and position, the general character of the seasons should be pointed out, and the aspect of the ground, as regards exposure to prevalent or hard winds, with any slope the ground may have, and its height above the sea should be stated, specifying if possible, the general temperature of the locality, and the degrees of greatest heat and cold annually experienced.

With respect to specimens of sub-soils, if of marl, sand, or clay, portions weighing about a pound, should be dried, tied up in a canvas bag, and labelled, to correspond with the respective soils above them. If the subjacent rocks be hard, a piece weighing also a pound, and fresh broken from the body of the rock, as nearly as possible beneath the spot whence any specimen of soil may have been selected, would suffice, and should be wrapped in strong brown paper, labelled to correspond with the soil above it. As specimens of many sub-soils may be rendered valuable for the purpose of illustrating those either well or ill suited to the growth of such trees as by their roots penetrate beneath the upper soil, commonly known as vegetable mould or humus, and which upper soil supports the great bulk of the plants commonly cultivated; it would be desirable to add a memorandum to any specimens which may serve to illustrate points of that kind. All specimens of soils should, if possible, be enveloped in wax cloth, and even packed in tin cases or cannisters, if any are at hand.

When a sufficient number of specimens in either of the departments here mentioned, has been collected, they should be packed in a box, and be sent by the cheapest, most efficient, and safe conveyance, directed—

On Service.
The Curator of the Museum of the Asiatic Society,
Calcutta.

For the Museum
of Economic Geology.

At the same time a communication should be addressed to the Curator of the Museum of the Asiatic Society, under cover to

The Secretary to the Government of Bengal,
Fort William,

stating the conveyance by which the specimens have been forwarded, with copies of the memoranda attached to them, referring to numbers on the specimens, in order, as much as possible, to prevent their loss.

Calcutta :
22nd January, 1841.

I have printed with unfeigned pleasure, the foregoing memorandum, to the value of which no recommendation can add. Every friend to India, whether connected with the Society or not, will, it is earnestly hoped, aid in accomplishing the great ends, to which, by the liberality of the Court of Directors and of the Government of India, it may now aim; viz. the full development of the agricultural and mineral resources of the country. Since this memoir was read to the Society, the following contributions to the Museum of Economic Geology, in addition to the collections sent out by the Court of Directors, under the care of Capt. Tremenheere, have been received.

Mr. Piddington, Acting Curator, As. Soc. Museum.	Specimens of cotton, coffee, sugar, tobacco, and tea soils, &c. from India, the Mauritius, United States, Singapore, &c. of which many are analysed. Specimens of Burdwan iron ores: analysed. Specimens of the earths used in the curious red glazing of the native sugar pans. Specimen of white clay from Rotasghur, which may be used like pipe clay for claying sugar.

I doubt not that we shall shortly be enabled to add many more to this list. To use the words of Mr. Piddington, "Our friends have only to recollect, that nothing pertaining to, or derived from the earth, if useful to man, can be unacceptable to our intended collection, and that even what may to them appear an every-day matter, and of no moment, may be fraught with important results in the hands of others."

I append to this valuable paper, further correspondence of interest to the Society, and to subscribers to the Journal on this important subject of Geological research, it having been put at my disposal by the Committee of Papers.

G. A. Bushby, *Esq. Secretary to the Government of India,*
General Department.

Sir,

Being authorised by the Honorable Court of Directors to deliver to the Government of India certain specimens illustrative of the mineral productions of England, I have now the honour to report my arrival at Calcutta, on the ship "Lord Hungerford," with these specimens under my charge. They consist of

43 Specimens of coal from the South Wales and South Staffordshire Coal districts; presented by Mr. H. T. De la Beche, F.R.S. &c., Director of the Museum of Economic Geology, under Her Majesty's Government.

10 Specimens of coal, and others of ironstone and limestone from the principal working beds near Birmingham; presented by J. S. Dawes, Esq.

50 Specimens of copper and other metallic ores, chiefly from Cornwall; presented by Mr. H. T. De la Beche.

119 Specimens of the ores of iron, copper, and tin, from South Wales, Cornwall, and elsewhere, collected by myself, amongst which are many specimens of copper ores; presented by Seymour Tremenheere, Esq.

24 Specimens illustrative of the process of tin smelting, exhibiting each stage of progress, from the rough ore to the metallic state; presented by Thomas Bolitho, Esq. of Penzance.

Details concerning the above are entered in a book, which is forwarded herewith, on the plan followed at the Museum of Economic Geology, wherein it is intended to describe the mineralogical character and geological connection of each specimen, together with such information as may be useful in tracing indications of similar substances in India.

The form of this, as well as of books of other Departments, kept at the Museum, is given in enclosure No. 1.

In addition to the specimens which have been enumerated, others have been promised by gentlemen connected with mining and smelting establishments; and as arrangements were made at the India House for their immediate dispatch, they may be expected shortly to arrive. They include,

Specimens of the process of copper smelting, as practised at Swansea; by H. Vigors, Esq.

Specimens illustrative of the modes in which the Cornish copper, lodes, occur in rock formations.

Specimens of the coal beds, and of ironstone from the Penydarren works at Merthyr Tydfil, and of the process of manufacture of different kinds of iron; by G. Grenfell, Esq.

Specimens of the principal coal beds, and of the iron ore, worked in the Forest of Dean; by — Protheroe, Esq.

Specimens of the principal working beds of the Newcastle coal field; by Charles Bigge, Esq.

Together with others, if the Government should desire them, which Mr. De la Beche will, I have no doubt, with the consent of the Commissioners of Her Majesty's Woods and Forests, be able to forward from time to time from the Museum of Economic Geology; many duplicates and spare pieces being often available for the purpose.

Some of the leading features of the mineral wealth of England, and the methods by which it is turned to the best advantage, will be thus represented, and will afford the means of comparison with similar products and processes in this country.

The mineral resources of India although more abundant, and more generally diffused than those of any other portion of the globe of equal surface, have hitherto attracted little attention; and have been aided in a very slight degree by the means which are necessary to their proper development. The search for metallic ores has been unguided either by the principles of science, or by the practice of other mining countries and workings conducted without the skill and power required to prosecute them successfully, have been confined to within small distances from the surface. Hence the stores of useful metals which India is known to possess remain comparatively untouched, and present at this day, almost a maiden field for improvement.

Enclosure No. 2, represents in a tabular form, localities wherein ores of the useful metals have been worked, and others which have been observed and recorded. The following is an abstract of the paper alluded to, showing the number of places in each of the principal ranges of hills, which produce the undermentioned ores.

	Iron.	Copper.	Tin.	Lead.	Silver.	Gold.	Antimony.	Sulphur.
Himalaya range, ...	9	10	...	4	...	river beds.	...	4
Aravully, ... Chittore, ...	6	10	...	5	1	...	1	...
Vindhya, ...	17	...	...	1	...	...	...	...
Kasya, ...	3	...	...	...	...	...	...	...
Assam Territory, ...	1	...	...	...	...	river beds.	...	...
Tenasserim, ...	2	1	1	2	...	...	1	...
Malabar range, ... Coromandel, ...	31	6	...	2	...	river beds.	...	3
Total, ...	69	27	1	14	1	river beds.	2	7

The extensive distribution of iron ores of good quality, is the leading feature of Indian mineralogy. These are found in great abundance in every range of hills, in some of which they have been worked on a very limited scale, but with great success, for long periods of time. In several instances, beds of coal occur contiguous to them, as at Hoshungabad, Palamow, Sheregur in the Burdwan district, on the Adjai, seventy miles south of Boglepore, Serrareem, and Cherrapoonjee.

The iron districts, Marwar, Bundelkund, a portion of Malwa, Behar, and Sambhulpore,* are situated within the limits of the great sandstone formation with which the coal measures of India are associated. It extends in a broad band across the centre of Hindoostan, from the valley of Assam westward, to that of the Indus, and it is probable that coal will be found in various parts of this formation, and sufficiently near to these deposits of iron, to render them extensively available for economical purposes. In the districts of Saugur, Jabulpore, and in the valley of the Nerbudda, limestone also occurs, the connection of which is important, as upon the union of these three substances, the success of iron-works depends.

This extensive sandstone tract, presents also another source of interest. In it the diamond mines of Punnah in Bundelkund are situated, and the strata here are believed to be identical with those containing the diamond breccia of the Ellore district, and of Cadapah, on the Pennar. These last have been traced as far north as Nagpoor, and other intermediate points of connection with the Bundelkund formation may also be found.

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* Captain Ouseley discovered a rich field of excellent coal on the banks of the Hurdah (Hutsoo of the maps) in last November.

The Himalayas at Kumaon, the Aravully range at Shekawattee, and the hills of the Nellore district, are the only portions of country which have been worked for copper: very few other localities are yet known; but in such extensive ranges of primary mountains of similar character, it may be asserted that deposits of copper are not confined to these localities only.

The Aravully range is of moderate elevation, and appears to offer facilities for further examination. The Singhana copper mines are at the northern extremity of this range, where the disturbing forces have probably acted with less intensity than elsewhere, and there is reason to believe that the lines of fissure in other portions, especially near the junction of the stratified rocks with granite, may partake of the same cupriferous character. This range has been found to be productive of lead also.

There is no evidence of tin westward of the Bramahpootra, but it occurs in alluvial ground in many parts of the eastern peninsula, from Burmah to the extremity of Malacca, Sumatra, and Banca where the chief deposit exists; abundant sources therefore of this metal remain unexplored in the ranges of hills which diverge to the south-east from the great Himalayan chain, to form this peninsula, of which Sumatra and Banca seem but disconnected portions; and it will most likely appear that Assam, at the northern extremity of this stanniferous country, will also yield tin in its alluvial formations, derived from the Himalayas, by which it is bounded.

These ranges of hills, are likewise the repositories from whence the rivers of Assam, Burmah, Ava, &c. receive the gold dust with which their sands are charged.

(Signed) G. B. TREMENHEERE,
Capt., Engineers.

Extract from Letter No. 70, *from the Secretary to the Government of Bengal, General Department, to Captain* G. B. TREMENHEERE, *dated the* 13*th January,* 1841.

In reply to your letter and its enclosures of the 24th ultimo, I am directed to convey to you the acknowledgments of the Right Honorable the Governor of Bengal, for the information and suggestions therein contained, and for the specimens of the mineral productions of England brought out by you.

A copy of your communication will be forwarded to the Asiatic Society, in whose rooms you will be pleased, agreeably to the accommodation which has been tendered by that body, to place the collection.

I am desired to observe, that if during your absence you will maintain a correspondence with the Curator of the Society's Museum, you may turn to servicable account the experience which you have acquired in England, for the formation of a Museum of Economic Geology, and the Asiatic Society will without doubt, upon any occasional visit which you may make to Calcutta, give you every facility of inspection, and allow such weight to your suggestions, as consistently with their rules may tend to the furtherance of the object in view.

It is the intention of the Right Honorable the Governor of Bengal to avail himself of your services and acquirements, in consequence of your appointment to the department of public works in the Tenasserim provinces, and to the superintendence of the Government forests, for the further prosecution of the inquiries commenced by the late Dr. Helfer into the mineral and commercial resources of the Tenasserim province, with a view to the development of the natural productions of that country.

Your particular attention will be directed in all your excursions to the practical geology and mineralogy of the Tenasserim territory, and you will report on the means and prospects of working any of the mines that have been, or may be discovered, and furnish specimens of all productions, in every possible case in duplicate, for the Government, and the Honorable the Court of Directors.

Note by Captain Tremenheere.

The following are suggestions concerning the mode by which the collection of geological specimens arrived from England, may be made useful.

By assigning for their reception a room in some public building, where they should be arranged in cabinets under glass, in a manner convenient for public inspection.

With them, or in an adjoining apartment, might be placed models of such machinery as is suited to the purposes of agriculture or mining in India.

A focus would thus be presented for the concentration of specimens of rocks, minerals, metallurgical processes, soils &c., from every locality, whereby a knowledge of the mineral resources, as well as of the capabilities of any district, in an agricultural point of view, would be gradually obtained.

These specimens, with descriptions accompanying, might be prepared according to printed instructions of the Committee of the Royal Society, framed for the guidance of those employed in Magnetic Observatories, whereby accurate accounts, with specimens, may be transmitted by persons entirely unacquainted with the sciences of geology, mineralogy or agriculture.

The Engineer Officers, or those of the Revenue Survey, with whose departments the physical character of the country is nearly connected, seem to present the best means by which such information may be obtained.

The specimens on their receipt, might undergo comparison with those already arranged, and be subjected, if essential towards the elucidation of a proposed object, to chemical analysis, for which purpose the services of a chemical analyst would be necessary.

Localities would thus be indicated, which might appear to be deserving of more particular examination, and to which it would be desirable to send a person properly qualified for the purpose.

It is conceived, that information so obtained would not only be of service to the Government, but, as the fullest publicity is intended, might serve to encourage private enterprize.

If such a system were in operation, it would afford the best means of imparting instruction in these subjects, both by lecture and manipulation, to youths of the medical school, or others who might eventually be attached to Executive Engineers, or to Collectors of Revenue; serving thus as an efficient medium of communication between such functionaries and the natives on matters tending to develop the natural resources of the country.

The reception of mining records is another object which may be combined with the above one, of great importance at this period, since records of all operations hitherto conducted under European superintendence can now be easily obtained. The want of such records in England has been much felt, and has been the cause of much useless expenditure of capital in modern times.

A collection of standard books, treating on the subjects above referred to, should be by degrees provided for.

G. B. TREMENHEERE.
Captain, Engineers.

FORM No. 1.

Ores of the useful Metals, Coals, and Mineral Mining Specimens, generally.

No.	Mineralogical description.	Locality	Chemical composition.	How obtained.	Where obtained.	Donor's name, if presented.	Remarks.

No. 2.

Metallurgical Processes, and Manufactured Articles.

No	Kind of substance.	Where manufactured	By whom manufactured	Composition of the substance.	How and where obtained	Donor's name, if presented.	Remarks.

No. 3.

Specimens of Soils, and of the Rocks beneath them.

No	Name of rock	Mineral composition of rock.	General character of soil.	Analysis of the soil.	Character of agricultural produce of the soil	Where and how obtained	Name of donor.	Remarks.

No. 4.

Polished Granites, Porphyries, Marbles, &c., worked into columns, &c.

No.	Kind of substance.	Locality.	Form into which the specimen is worked.	Where, and by whom worked into form	How and where obtained	Donor's name, if presented.	Remarks.

No. 5

Stones employed for Architectural or Engineering purposes.

No	Kind of rock.	Geological series to which it belongs.	Locality.	Owner's name and residence	Mineral composition	Chemical analysis	Specific gravity	Resistance to pressure	Resistance to frost.	Where employed & condition of buildings constructed of it	Price per cubic foot or ton	Where and how obtained.	Donor's name, if presented	Remarks

No. 6

Museum of Economic Geology, Department of Her Majesty's Woods, &c. Return for the Quarter ending——

No.	Additions to the Museum	When received	Whether presented or purchased, if presented, by whom?	No. in Catalogue of Museum	Number and description of analysis made for the Museum.	Number and description of analysis made for the Public.	Number and description of lectures delivered at the Museum.	Number of entries to the lectures.	Remarks.

Ores of the useful Metals found in India.

No.	Description of Ore.	Locality.	Province.	Hill range.	Mineralogical description	Remarks	Authority.
	Iron.	Dhamakot	Kumaon, ...	Himalaya, ...	Hematite	An extensive bed, yielding from 30 to 60 per cent. of good iron.	Captain Herbert.
	,,	Ramgar, ...	Kumaon, ...	Himalaya, ...	Micaceous, ...	Supposed to be connected with the above.	
	,,	Kutsari, ...	Kumaon, ...	Himalaya, ...	Compact, ...	Yields the best iron in the province, & is accompanied with limestone.	
	,,	Chowgark, ...	Kumaon, ...	Himalaya, ...	Yellow oxide,	Contains some Manganese, and would afford a good steel.	
	,,	Sil, ...	Bishchir	Himalaya, ...	Magnetic, ...	The iron made here is much in demand for sword blades. This and the Kutsari Mine are deemed worthy of attention.	
	,,	Kalsi, ...	Kumaon.	Himalaya, ...	Specular, ...	An extensive bed.	
	,,	Phagone, ...	Surmore, ...	Himalaya, ...	....	A large vein of Iron Ore.	Dr Royle.
	,,	Chipal, ...	Surmore, ...	Himalaya, ...	....		
	,,	Deyrah, ...	....	Himalaya, ...	....	In the descent to Deyrah in quantities sufficient to be profitably worked.	
	,,	....	Marwar, ...	Aravully, ...	....	Very abundant in the hills, which bound these provinces. Several foundries are established.	Sir John Malcolm.
	,,	....	Mewar.	Aravully, ...	....		
	,,	Baug, ...	Malwa, ...	Vindhya, ...	....	Supplies iron to Indore.	
	,,	Chandurgh, ...	Malwa.	Vindhya.	....	Ore of quality abounds, but from the imperfect mode of working the metal, is only valued for common purposes.	Captain Dangerfield.
	,,	Kantcote, ...	Malwa.	Vindhya, ...	....		
	,,	Cheettakairee, ..	Malwa.	Chittore, ...	....	An ore of good quality and abundant in this neighbourhood.	
	,,	Gwalior, ...	....	Chittore, ...	Hematite, ...	This iron is much esteemed	Captain Franklin.
	,,	Gorakpore, ...	... .	Valley of the Nurbudda, ...	....	Beragur, Dangui, Baila, Powri, Mygowa, Moguila, Birsinpoor, Deori, Rijoa, Bamna, & Personah are other localities in this valley. An argillaceous limestone is near	
	,,	Sakri, ...	....		....		
	,,	Feerozepoor, ...	....	Aravully, ...	Hematite,	Iron is sold at these places, at 10 seers per Rupee.	
	,,	Narnoul, ...	....	Aravully, ...	Hematite,		

Ores of the useful Metals found in India—(Continued.)

No.	Description of Ore.	Locality.	Province.	Hill range.	Mineralogical description,	Remarks.	Authority
	Iron.	Hoshungabad,	Bhopal,	Vindhya,		Coal is said tc accompany it on both banks of the Bhoorna.	Lieut. Finnis.
	,,	Heerapore,	Bundelkund,		Hematite.	This iron ranks next to that of Gwalior	Capt. Herbert.
	,,	Katola,	Bundelkund,			Dharmuni, Waldana, and Sorai or other localities contiguous.	
	,,	Punnah,	Bundelkund,				
	,,	Boglepore,	Bahar,	Vindhya,		70 miles south of this it occurs with coal on the Adjai. The hilly portion of this province is rich in iron.	
	,,		Palamow,			Occurs with coal. The ore is rich and abundant.	
	,,	Sircunda,	Rajmahl,	Rajmahl,		In great abundance.	Mr. Glass
	,,	Mesadhe,				Affords a very superior iron, and is abundant.	
	,,	Sheargur,	Burdwan,			Occurs with coal. The whole district affords valuable ores, which yield 50 per [illegible]t. of metal.	Mr Jones.
	,,	Beradroog,	Goondwana,	Sautpore,		Co[illegible] is found here also on the river Towa.	
	,,	Amdeah,	Sumbhulpore,				Mr. Rose.
	,,	Tuesmahl,	Saugor,			30 miles NE. of Saugor, with limestone.	Rev. R. Everest.
	,,	Pandria,	Silhet,	Kasya,			Dr. McClelland.
	,,	Serrareem,		Kasya,		Occurs with coal. 20 seers of iron are sold for a rupee.	Mr. Jones.
	,,	Cherrapoonjee		Kasya,		Occurs with coal.	Col. Watson.
	,,		Assam,			Celebrated for its iron mines and steel.	
	,,	Moulmein,			Red iron clay,	Anthracite coal also occurs here.	Capt. Foley.
	,,	Tenasserim,			Oxide of iron,	Limestone also is near.	Capt. Low.
	,,	Tavoy,			Magnetic,		
	,,		Orissa,				
	,,		Hyderabad,		Hematite,	The ores are poor, and the iron expensive.	Dr. Voysey.
	,,	Doodgwana,	Hyderabad,	Sichell,	Hydrate,	At Indore also.	Dr. Malcolmson

Ores of the useful Metals found in India—(Continued.)

No.	Description of Ore.	Locality.	Province.	Hill range.	Mineralogical description.	Remarks.	Authority.
	Iron.	Rajamundry,	N. Circar,			In considerable quantity.	Dr. Heyne.
	,,	Ghettypore,	Mysore,	Malabar,		Steel is manufactured.	
	,,	Chittledroog,	Mysore,		Iron glance,		
	,,	Darmaparam,	Mysore		Clay iron stone,		
	,,	Yevogully,	Mysore,		Micaceous.	Near Sautgur. This ore is rich and abundant in the mountains of the Carnatic from Vellore to the Ghauts.	
	,,	Bangalore,				At Maugry there are many forges and a manufacture of steel.	
	,,	Kudavigada,	Buddela,		Iron glance,		
	,,	Ramanakapetta,	Ellore,			Ore can be obtained in any quantity, and in six other villages.	
	,,	Severndroog,	Koncan,			Also at Hurryhur, and Ruttengherry.	
			Guzerat,			On the SW. coast there are extensive iron works.	
	,,	Spendamungolem,	Salem,			Extensive iron works established by Mr. Heath; steel also is made.	Mr. Heath.
	,,	Konasamundrum,		Nermul,	Iron clay,	Celebrated for its steel called "Wootz," which is carried to Persia. The iron used in manufacture is in proportion of three parts from Mertpallee, and two from Condapoor. 110 Rupees weight, sold for 8 annas.	
	,,	Deemdoortee,			Magnetic,	Has been used for ages in making Damascus steel Two-fifths of Indore iron are used in the process. The iron is said to be superior to any English iron, and even to the best Swedish. The mines afford a boundless supply, and are easily wrought.	Dr. Malcolmson.
	,,	Bangnapully,	Nellore,		Specular & Magnetic,	Occurs in the sandstone or Diamond breccia, also at Punnundrow, but not worked.	Dr. Malcolmson.

Ores of the useful Metals found in India.—(Continued.)

No.	Description of Ore.	Locality	Province.	Hill range.	Mineralogical description.	Remarks	Authority.
	Iron.	Doodye, ...	Cutch, ...	....	....		Capt. Grant
	,,	Taggoor, ...	Koncan, ...	....	Magnetic, ...		
	,,	....	Coomlietor, ..	....	....		
	Copper.	Dhanpur.	Kumaon, ...	Himalaya, ...	....	This is the principal mine in the district. The ore yields 50 per cent. of copper. It occurs in limestone rock and is easily worked.	Capt. Herbert.
	,,	Dhobri, ...	Kumaon, ...	Himalaya, ...	....		
	,,	Gangoli, ...	Kumaon, ...	Himalaya, ...	Doublesulphuret,	These mines are next in importance to those of Dhanpur and Dhobri. They occur in beds of indurated talc, which is easily excavated. At Pokri the schist is so soft as to cause great obstruction to the miners. At Khari ore has been observed in small quantity. All these ores are free from arsenic.	
	,,	Sira, ...	Kumaon, ...	Himalaya, ...	Doublesulphuret,		
	,,	Pokri, ...	Kumaon, ...	Himalaya, ...	Doublesulphuret.		
	,,	Khari, ...	Kumaon, ...	Himalaya, ...	....		
	,,	Shor Gurong, ..	Kumaon, ...	Himalaya, ...	....		
	,,	Khalsee, ...	....	Himalaya, ...	....		
	,,	Katmandu, ...	Nepaul, ...	Himalaya, ...	....	Has considerable manufactories of copper, brass, and bell metal.	Dr. Royle. Mr. Hodgson.
	,,	....	Gurwal	Himalaya.	....		L . Webb.
	,,	Singhana, ...	Shekawattee,	Aravully, ...	Yellow & grey, sulphurets and carbonates, ..	These mines have been worked for centuries. They are farmed annually for 14,000 rupees.	Capt. Boileau.
	,,	Khetri, ...	Shekawattee,	Aravully, ...			
	,,	Buboe, ...	Shekawattee,	Aravully, ...			
	,,	Ajmere, ...	Rajasthan, ...	Aravully, ...	Red oxides and carbonates,	The lode runs north and south. It is said that all the Ajmere valley, from Kishengurh to Rajgurh is traversed by copper lodes.	Capt. Dixon.
	,,	Rajgurh, ...	Rajasthan, ...	Aravully, ...			
	,,	Rajauri, ...	Rajasthan, ...	Aravully, ...			
	,,	Jeypoor, ...	Rajasthan, ...	Aravully, ...	....	Mines to the north are said to have formerly yielded revenue.	Col. Todd.
	,,	Saloombra, ...	Mewar, ...	....	....	Copper is coined by the chief of Saloombra,	
	,,	Mandal, ...	Mewar.	....	....	And in the valley of Oodeypoor.	Mr. J Hardie

Ores of the useful Metals found in India—(Continued.)

No.	Description of Ore.	Locality.	Province.	Hill range.	Mineralogical description.	Remarks	Authority
	Copper.	Basawur,	Bhurtpore,			This working has been abandoned	Capt. Boileau.
	,,	Nellore,			Carbonate of copper with red oxide of iron.	The Indian Copper Mining Company has been formed at Madras, to turn the mineral stores of this district to advantage. The ores are free from sulphur and arsenic, and become quite pure on smelting.	Dr. Heyne.
	,,	Ongole,					
	,,	Wamgapadu,					
	,,	Gongpettah,					
	,,	Yerrapully,					
	,,	Agricondolah,					
	,,	Moulmein,			Carbonate,	Observed in limestone rock in excavations made for silver In Siam and Tonquin Mines are worked also at Acheen.	
	Tin.	Mergui,	Tenasserim,			Said to abound in tin.	
	,,	Singapore,	Malacca,		Stream Tin.	These mines have been reported upon by Captain Low; at Perar the tin is found 7 feet from the surface. Near to Prince of Wales Island, yields a pure tin called 'Ealin.'	Capt Low.
	,,	Perar,	Malacca,				
	,,	Legar,	Malacca.				
	,,	Junk Ceylon,				500 tons were at one time exported annually, but now much less.	
	,,	Sumatra,					
	,,	Bancah,					
	,,	Burmah,					
	,,	Martaban.					
	Lead	Borela,	Jaunsar,	Himalaya.	Granular Galena,	This mine paid formerly 2,000 Rs. annual rent Capt Drummond with a Cornish miner has gone there	Capt. Herbert.
	,,	Maiyar,	Jaunsar,	Himalaya,		Paid formerly 4,000 Rupees annually	
	,,	Bhatnor,	Jaunsar,	Himalaya,		Numerous galleries exist here, as well as at Borela	
	,,		Nepaul,	Himalaya,			Mr. J. Harding.
	,,	Jowar,	Oodeypore,	Aravully.	Argentiferous,		Sir J. Malcolm.
	,,	Ajmere,	Rajasthan,	Aravully,	Galena,	Mines have been formerly worked with advantage.	

Ores of the useful Metals found in India—(Continued.)

No	Description of Ore.	Locality.	Province.	Hill range.	Mineralogical description.	Remarks.	Authority.
	Lead.	Jeypoor,	Rajasthan,	Aravully,		Mines to the north are said to have yielded much revenue.	Capt. Dangerfield.
	,,	Nuseerabad,	Rajasthan,	Aravully,		Has been worked by Capt. Dixon for some years.	Capt. Dixon.
	,,	Jhodepoor,	Manvar,			30 miles to the SE.	Mr. Jones.
	,,	Luchmeepore,	Boglepore,	Vindhya		40 miles from Boglepore there is a rich vein of galena.	
	,,	Bangnapilly,	Nellore,		Argentiferous galena,	A mine here formerly furnished the district with lead.	Dr. Heyne
	,,	Parsuni,	Nagpur,			Lead has been found in the neighbouring hills.	Capt. Jenkins.
	,,	Tenasserim,				There are mines also in Ava, Burmah, and Siam.	Capt. Low.
	,,	Moulmein,					Capt Foley.
	Silver.	Jowar,	Oodeypore,	Aravully,	Argentiferous galena.		
	,,	Assam,					
	,,	Bhootan,					
	,,	Siam,					
	,,	Umeerapoor,	Burmah,				
	,,	Badooem,	Burmah,			The principal mines.	
	,,	Woobalcolla,	Burmah,				
	,,	Bencoolen,	Sumatra,			There are rich mines at Songhipago, Songhiabo, and Sohungong.	
	,,	Padang,					
	Gold.		Nepaul,			In the beds of rivers issuing from the Himalayas.	Capt. Herbert.
	,,		Punjaub,				
	,,	The Gomti river,					
	,,	The Mahanuddy River.				The rivers of Berar, Golcondah, and the Deccan carry down gold dust in considerable quantities.	

Ores of the useful Metals found in India—(Continued.)

No.	Description of Ore.	Locality.	Province.	Hill range	Mineralogical description.	Remarks.	Authority.
	Gold.	Belamongslum,	Mysore,				
	,,	Assam,				Contains rich mines of gold.	Capt. Warren.
	,,	Badooem,	Ava,			Gold mines worked.	
	,,	Woobooltae,	Burmah,			Also at Umeerapoorah, Manipur; Nooboolltoe is the richest.	
	,,	Bantuphannua,	Siam,			The mines yield 15,000 Rupees a year They are in the latitude of Mergui.	
	,,	Batang Morung,	Malacca			Occurs in granite; Cambodia, Laos, Cochin-China, Pegue, and Tonquin have gold also.	Lieut. Newbold.
	,,	Comtah,	Nagpur,				Capt. Jenkins.
	,,	Kah River,	Moradabad,				Mr. Ravenshaw.
	Antimony.		Malwa,			West of the frontier.	
	,,	Moulmein,			Sulphuret.		
	,,	Tavoy,	Malacca,			Also in Burmah and Siam.	
	Platina	Kamoe,	Ava,			In river beds with the gold washings.	Major Burney.
	Quicksilver,	Andaman Islands,					
	Manganese,		Ava,				
	Plumbago,			Himalaya,		Has been observed near the Soonth river in considerable quantities.	
	Sulphate of Iron,		Behar,			Occurs in efflorescence in rocks containing iron pyrites.	Mr. J. Stephenson.
	Sulphur,		Kumaon,	Himalaya,		Deposits in the galleries of lead mines and in river beds, as the Tonse, Ramgunge, and Jaunsar.	
	,,	Amalapor,				In a lake in the territory of the Peddsore Rajah.	
	,,	Colair Lake,	Ellore,			And at Cuddapah in the Nellore district.	
	,,	Sahansadhara.		Himalaya,		Below Mussooree there is a sulphurous spring.	Dr. Royle.
	Diamonds.	Malavully,	Ellore,			This is one of seven villages in the district near which diamond mines exist in the valley of the Kistnah.	Dr. Heyne.
	,,	Kondapully,	Ellore,				

Ores of the useful Metals found in India—(Concluded.)

No.	Description of Ore.	Locality.	Province.	Hill range.	Mineralogical description.	Remarks.	Authority.
	Diamonds.	Cuddapah,				In the valley of the Pennar. There are several mines in the valleys between these places and the low grounds to the North.	Dr Heyne.
	,,	Gooty,					
	,,	Golconda,					
	,,	Budrachallam,				On the Godavery.	
	,,	Sumbhulpore,				On the Mahanuddy.	
	,,	Kurnool,					
	,,	Punnah,	Bundelkund,			The mines here yield 1,20,000 rupees annually to the Rajas of Punnah, Banda, Chercarie and Joitpore.	
	Alum.	Sahibgong,	Boglepore,	Vindhya,	Sulphate of Alumina.	Occurs in efflorescence in alum slate.	Mr. Campbell.
	,,		Nepaul,			Found in the Lower, Central, and Upper hills, within a few days' journey of the Ganges.	
	Cornelian.	Rae Peepla,	Baroach,	Suatpore,		The annual value formerly exported from Bombay was 11,000 lbs the produce of the mines.	
	Corundum.	Salem,	Carnatic,				
	,,	Kyalphyen,	Ava,				
	,,	Nellore,				In the Pennar district, and in the mountains of the Carnatic.	
	Ruby.	Songayuem,	Coimbatoor,			Other valuable gems, as the Spinel ruby, Zircon, Cat's eye, and Topaz, occur in the rivers of the sienitic and basaltic districts of the Peninsula, and in Ceylon.	
	,,	Kyalphyen,	Ava,				
	Sapphire.	Kyalphyen,	Ava,				
	Garnet.	Palunshah,	Hyderabad,			A mine of garnets.	Dr. Voysey.
						Porcelain earth is found at Ootacamund in the Neilgherries; and slates in any quantity at Bagulkata in the western Ghauts.	Dr. Benza. Lieut. Jervis.

Grammatical construction of the Ho language.—By Lieut. TICKELL.

I hope due allowances will be made for the imperfectness of the grammatical details here given, when it is remembered that the Ho language has no written character, nor does there exist a person, native of the Kolehan or otherwise, who could give me the slightest assistance on this point.

It would be trite to observe that grammar is as inherent and essential to all languages, even the most barbarous, as a vocabulary itself. By first learning a number of the words and sentences arbitrarily, the system on which they are founded may be detected in due time by patient comparisons of them, even when the speakers themselves are unable to give the inquirer the least information on the construction of what they are saying. With this difficulty once mastered, it is inconceivable with what ease the most (apparently) complex and difficult languages become familiar.

The sounds of the Ho language are exceedingly pure and liquid, without strong aspirates or gutturals, and may be well rendered by the English alphabet, or still better the French one, as that admits of the slight nasal inflection which prevails in many words in the Ho dialect.

Let the following conventions be made to the sound of the vowels, in the ensuing dialogues, &c.

á ———	as in	"father,"	"rather,"
é ———	,,	"prey,"	"été,"
ĭ ———	,,	"skip,"	"trip,"
ee———	,,	"sheep,"	"peep,"
ȳ ———	,,	"fly,"	"try,"
aï or aÿ ——	,,	longer sound as in "aye, aye?"	
ō ———	,,	"bone,"	"stone,"
oo ———	,,	"fool,"	"stool,"
*ṇ (nasal n)	,,	"Ton"	"Fanfaron," (French.)

The long acute vowel sounds, such as *oo* and *ee*, also the letter *r*, are pronounced too liquidly and subtilely to be easily imitated by a stranger, and in some words the inflections of the vowels are inconceivably complex and mellifluous. The general euphony or cadence of the language is sprightly and cheerful; if the subject be of a complaining nature it subsides into a strange chaunt, the sentences being linked together by such see-saw sounds, as "ná-do na-do enété ná-do" which have no meaning, but serve to connect together the speaker's ideas.

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* Also g, as the French liquid g, in Coulogne, Boulogne.

When two or more words come together, the former ending, and the latter beginning with similar vowels, they are joined by ellipsis. as "Hola'lé seniéna," instead of "Hola allé seniéna," *we went yesterday.*

ARTICLE.

There are none, (properly speaking), definite or indefinite.

NOUN.

There is no distinction of genders, marked or influenced by termination, it being determined by the sense or meaning of the word, whether referring to a *male* or *female* being. Besides *man* and *woman*, "erril" and "èra," *boy* and *girl*, "koá" and "koŏee," names of relătions, and those of a few domestic animals, all other nouns are distinguished in their gender by prefixing "Sandee" *male*, or "Enga" *female*, as in Persian or English مادن ریچ نرریچ, *he-bear, she-bear.*

A noun has three numbers, singular, dual, and plural, as in Greek.

The nouns can scarcely be said to have declension as the terminal does not vary either according to number or case, although a distinguishing adjunct, which may be called a 'Pronoun article,' from its nature and use, is added.

	Singular.	Dual.	Plural.
Nom.	Sètá, *a dog.*	Seta king, *two dogs.*	Sĕta ko, *dogs.*
Gen.	Sĕtá-á, *of a dog.*	Seta kingya, *of two dogs.*	Seta koá, *of dogs.*
Ab.	Seta-té, *from a dog.*	Seta king té, *from two dogs.*	Setako té, *from dogs.*

The dative, accusative, and vocative cases do not differ from the nominative, being only known from their position in a sentence.

In composition, the noun in an accusative case takes the first place in the sentence, if the nominative be a pronoun; otherwise the noun-nominative precedes, the accusative follows, and the oblique or dative case comes immediately before the verb, sometimes immediately after it. "En ho kajikeeáï áÿa èra," *that man said to his wife,* "Dendka oé tootigoikeea," *Dendka shot the bird.* "Eeán hōn do chowlee seta emadȳa," *my son gave the dog some rice.*

ADJECTIVE.

The adjective does not alter in termination, either in number, case, or gender; and always precedes the noun it qualifies. As "Boogee ho," *a good man;* "Boogee ho-á," *of a good man;* "Boogee ho lo té," *with a good man,* &c. There are no degrees of comparison, but as in Hindustani the qualifying words *very,* or *most of* all, are prefixed to denote grades of quality, as "Etka," *bad,* "Ená té neeá o etka," *this is worse than that.* "Sabee ré nee o etka minna," *this is worst of all.* "Boogee lèka èra," a *pretty woman.* "Boogee lèka èra ko," *pretty women.*

PRONOUN.

The first personal pronoun has four numbers, the singular, dual, plural, and plural comprehensive. The others only the three first, as noticed in the noun-substantives.

The possessive pronouns are the same as the personal, with the genitive inflection *á* added.

PERSONAL PRONOUNS.

	Singular.	Dual.	Plural.	Pl. comprehensive.
1*st.*	Eeng *or* aïng, *I*	Alleeng, *we two*	Allé, *we*	Aboo, *we all*
2*d.*	Um, *thou*	Abben, *you two*	Appé, *you*	"
3*d.*	Ay̆ *or* áy̆o, *he*	Aking, *they two*	Ako, *they*	"

In speaking, if the person include the person addressed, himself, and every one present, as nominatives or agents, he uses the plural comprehensive. If he exclude the person addressed, he employs the first person plural, as "Hola aboo seniéna," *yesterday we went* (i. e. you and all of us.) "Hola allé seniéna," *yesterday we went* (i. e. not you, we alone.)

The personal pronouns in the nominative case both precede and terminate the verb, optionally with the speaker, as, *I speak,* "Eeng kajitanna" or "Eeng kajitannaïng" or "Kajitannaïng."

I go, "Eeng senotana," or "Eeng senotannaïng," or "Senotannaïng."

And to give energy to the sentence, the pronoun is repeated, with the connect "do" between them, as "Eeng do eeng kajitanna," *T'is I who speak,* "Um do um kombookenna," *Thou alone statest it.*

The most difficult part of their construction is in the dative and accusative cases, which are absorbed in the verbs they are governed by, in a manner unknown to other languages, being placed in the centre of the verb, after the root, and before the tense terminal.

As, *I speak to thee,* "Eeng kaji*me*tanna;" *he spoke to me,* "áÿo kajiked*in*gia;" *he spoke to them,* "kajiked *ko*ái;" *the tiger saw me* "koola do nelded*in*gia;" *he killed him,* "áÿo goiked*á*ÿa." Here I have underlined the oblique or accusative pronoun, where it comes in, just before the tense terminal of the verb.

POSSESSIVE PRONOUNS.

	Singular.	Dual.	Plural.	Pl. comp.
1*st.*	Eenga* or áingia! *my*	alleengia	alléa	abooá
2*d.*	Umma, *thy*	abbena	appéa	,,
3*d.*	Aÿa, *his*	akingia	akoá	,,

These always precede their substantives.

DEMONSTRATIVE PRONOUNS.

Singular.	Dual.	Plural.
Nee *or* inee, *this*	neeking, *these two*	niko, *these*
Neeá *or* ineeá, *of this*	neekingia, *of these two*	neekoá. *of these*
Neeté *or* ineeté, *to, with, &c. this*	neekingté,	neekoté,

En, *that*	enking, *those two*	enko, *those*
Ená, *of that*	enkingá, *of those two*	enkoá, *of those*
Enté, *by, from, with &c. that*	enkingté,	enkoté,

"Nee" *this,* is sometimes used idiomatically by a person referring to himself. If a Kole were to be asked what countryman he was? he would answer, "Ho nee gé," *I am;* or literally, *this is a Kole.* Of what clan are you? Answer, "Poortee neegé," *I am a Foortee.*

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* Pronounced, as 'mignon,' 'Ligne,' &c. in French.

INTERROGATIVE PRONOUNS.

Okoï, *who?*	chikan, *which?*	chiá, *what?*
Okoiá, *whose?*	chikaná, *of which?*	

RELATIVE PRONOUNS.

Relative pronouns are very vague, the sentence being generally so rendered as to obviate the necessity of them, thus, instead of saying, *The man who went;* a Kole would say, *The gone man*, "Senien Horo."

But at times "Chikana," *whatever*, and "Ena," *that*, are used relatively, as "Chikana um kajeeá, èna eeng áïooma," *what you say, that I will listen to.*

VERBS.

Verbs are either active or neuter. There is no passive voice.

The Infinitive mood is formed by adding *téá* to the root.

The Present participle by adding *tan* or *té.*

The Past participle by affixing *kedté.*

In the active or transitive voice, the Present tense Indicative mood, adds to the root "*tanna,*" in the neuter voice, "*akanna.*"

The Imperfect tense there is none, the Present tense being used, and its Imperfect signification understood by the context.

The Perfect tense is formed by adding in the active voice, "*kidda, keea, kenna, lidda, or tadda,*" to the root. In the neuter voice, "*lena,*" or "*ièna,*" sometimes "*kenna.*"

There is no Pluperfect tense, but greater completion is expressed by conjugating the verb "chabteá," *to finish*, added to the root; much the same way as "chookna" in Hindustanee.

The Future is formed by adding to the root *eea* or *oá,* or sometimes simply *á*, in which latter case the sound of the root is prolonged. Except "nooiteá," *to drink*, which makes "noonooá;" and "roteá," *to gore* (as a bull) "roroá."

The Imperative is formed by adding (in the 2nd person singular) to the root, "*mèn*" and "*omén*" or "*ȳmén,*" if the root end with a consonant. In the other persons *ká* precedes the pronoun, and the simple root of the verb, which will be more clearly shown in conjugating. In a negative sense, "*alum*" or "*alo*" is prefixed to the 2nd personal pronoun, *á* being added to the root; if in the 3rd person, singular, dual, or plural "*aloka*" is prefixed to the pronoun, and the root alone of the verb is used.

The Subjunctive mood is vague and imperfect. In the Present, and Future tenses "*rèdo*" is added to the root, sometimes together with the word "*honang,*" "*derang,*" or "*torá*" (signifying conditionality) affixed.

The Past tense is formed in the same way; indeed there appears to be no Past Subjunctive tense; but sometimes the conditional terminal "*rêdo*" is added to the Past perfect Indicative.

This word "*rèdo*" admits the vowel to be affixed to it, or to come immediately before it and after the root.

Conjugation of the verb "Kajčeteá," *to speak.*

INFINITIVE MOOD.

Present tense—Kajĕetéa, *to speak,*
Present Participle—Kajitan, or Kajienté, *speaking,*
Past Participle—Kajikedté, *having spoken.*

INDICATIVE MOOD.

Present tense.

	Sing.		Dual. Plural.	
1st. Person,	Aïng,	Kajitanna,	Alleeng—Allé,	Kajitanna, *I &c. am speaking.*
2d. „	Um,		Abben—Appé,	
3d. „	Aÿo,		Aking—Ako,	

Perfect tense.

1st.	Aïng—Alleeng—Allé,	Kajikidda, Kajilidda *or* Kajitadda. *I &c. spoke or have spoken.*
2d.	Um— Abben—Appé,	
3d.	Aÿo— Aking— Ako,	

Future tense.

Aïng, Um, &c. &c. &c.—Kajeea, *I &c. &c. will speak.*

IMPERATIVE MOOD.

Sing.	Dual. Plural.
Eeng Kakajee, *Let me speak.*	Kajeeaboo *or* Abookakajee, *Let us all, &c.*
Um Kajeemén, *Speak thou.*	Kajee ben *or* Abbenkakajee, *Speak you, &c.*
Ayo Kakajee or Kakajee o kái, *Let him speak,*	Kajeealling *or* Allingkakajee, *Let us, &c.*
	Kajeeallé *or* Alléokakajee, *Let us, &c.*
	Kajeeako *or* Akokakajee, *Let them, &c.*
	Kajeeaking *or* Akingkakajee, *Let them, &c.*

NEGATIVE

Sing.	Dual. Plural.	
Alokáing kajeea, *Do not let me speak.*	Alo k'aboo kajeea.	*Do not let us &c. &c.*
Alum kájeea, *Speak not.*	Alo k'allé kajeea.	
Alo kai kajeea, *Do not let him speak.*	Alla'bben kajeea.	
	Al'appé kajeea.	
	Alo ka'ko kajeea.	
	Alo ka'king kajeea	

SUBJUNCTIVE MOOD.

Present tense.

Eeng Kajeerèdo, *If I speak.*	Aboo,	Kajeerèdo, *If we &c. speak.*
Um Kajeeredo, *If thou speakest.*	Allé,	
Aio Kjeeredo, *If he speak.*	Abben,	
	Appé,	
	Ako,	
	Aking,	

Perfect or Pluperfect.

Eeng, Um, &c. &c. &c. Kajeekedrèdo, *If I &c. &c. had spoken.*

CONDITIONAL, OR POTENTIAL.

Eeng Kajeáing honang, *I would speak.*	
Um Kajeeum honang, *Thou, &c.*	Allé &c. &c. Kajeea honang,
Aÿo Kajeea honang, *He, &c.*	*We might or would speak.*

NOTE. As has been before explained, in all these tenses and persons (except in the Imperative) the pronoun may be either prefixed, or affixed, or both.

The same Verb, Conjugated with its Objective Pronoun.

INDICATIVE.

Present tense.

Eeng or Aÿng	Kajeeing tanna,	*I speak to myself.*
,,	Kajee metanna,	*I speak to thee.*
,,	Kajee áïtanna,	*I speak to him.*
,,	Kajee' létanna,	*I speak to ourselves.*
,,	Kajee' ling tanna,	*I speak to us two.*
,,	Kajee' ben tanna,	*I speak to you two.*
,,	Kajee' pétanna,	*I speak to you.*
,,	Kajee king tanna,	*I speak to them two.*
,,	Kajee kotanna,	*I speak to them.*

The same exactly for all the other persons, and tenses, &c.

Perfect tense.

Aïng, Um, Aÿó, &c. &c. &c.	Kajikedingiá.	*I, thou, he, &c. &c. &c.*	*spoke to myself.*
	Kajiked'miá.		*spoke to thee.*
	Kajikedáïá.		*spoke to him.*
	Kajikede'lia.		*spoke to ourselves.*
	Kajiked'lingia.		*spoke to us two.*
	Kajiked'bena.		*spoke to you two.*
	Kajikedpéá.		*spoke to you.*
	Kajikedkingiá		*spoke to them two.*
	Kajiked'koá.		*spoke to them.*

Examples of this construction, especially in the Imperative mood, will be given in the Vocabulary, so need not be further dwelt on here.

It is scarcely possible to reduce the verb "*to be*" to conjugation, unless we suppose the varied forms in which it is used as inflections of separate verbs, wanting in many tenses. For "*to be*" is expressed by different verbs, according to its allusion to time, a person, or a thing; and again as whether it relate to mere existence or nature of existence. In short, there is no auxiliary verb "*to be*" which can be independently conjugated. The unchangable word "minna," or "minnakana," is applicable in the present tense alone, to denote a *state* of existence, as "Eeng, um, aÿó, &c. minna, or minnakana," *I am, thou art, he is,* &c. But in past and future tenses some other verb denoting *presence,* as the verb "*to come,*" "*to reside*" &c. must be employed.

But the verb "*to be,*" when implying the *nature* of existence, can be rendered in the past and future tenses, as well as the present, by adding to the participle or adjective, *oá* in the future, and *iena* in the past, as "eeng laga akanna," *I am tired;* "eeng lagaoá," *I shall be tired;* "eeng lâgiëna," *I have become tired;* "eeng rènga akanna, or renga akannaing," *I am hungry;* "eeng rengaoá or rengaoing," *I shall be hungry;* "eeng rengaièna," *I was hungry.* *Oá* and *iena,* it is to be remembered, are inflections of the future and past tenses in all neuter verbs.

Again the verb "*to be*" can be simply represented in the future and past tenses, when speaking of a *thing,* by the word "hobawa," *it shall or will be,* and "hobiena," *it has been;* also in the present, "hobowtanna," *it is.* This mode of expression commonly refers to the success or accomplishment of any project. In the English idiom we should say for "hobawa" *it will do, or it will answer;* "hobiena," *it is all over,* or *has succeeded;* "hobowtanna," *it is going on.*

That boy will be a thief, could not be rendered "En koá do komboo hobawa," but "En koá do komboo oá."

Your business will be done to-morrow, not "Umma kajee gappa oá," but, "Umma kajee gappa hobawa."

This will never do, "Ka hobawa;" *go away, it is all over* "Marsenomén hobiéna."

In English and other languages, state, nature, or condition, is rendered by affixing or prefixing the various tenses of the verb "*to be*" to the adjective, as to be hungry, *I am hungry, I was hungry;* "*to be glad, I am glad, &c. &c.*" But in the Ho dialect the adjective itself becomes a neuter verb, and is conjugated by affixing to it the different inflections denoting time and mood—*to be hungry,* "rengatéá;" *I am hungry,* "renga akannaïng;" *I was hungry,* "rengaiénaïng;" &c.

NEUTER VERBS.

After what has been said, it would be unnecessary to give any example of the conjugation of neuter verbs. It only requires to be remembered that their present terminal is "akanna" instead of "tanna;" and their past inflection "iĕna," instead of "kidda, tadda, lidda, or eea," all of which latter are transitive forms.

Some verbs are both neutral and transitive, as "Chabateá" *to finish.* They have therefore both inflections. In the transitive form "Chabatea" is frequently added to the root of some other verb, to denote completion; but it may also be used alone: in the neuter form, it is of course confined to the third person.

EXAMPLES.

Yōmchabakiddaí, *He eat it all up.*
Bȳchabakidallé, *We finished (making) it.*
Kajeechabȳmén, *Finish speaking.*
Gappa miang chabawa, *It will be done to-morrow or next day.*
Nádo chabiéna, *It is now finished.*

The word "Hereá" is placed between the root and terminal of a verb to denote positiveness or certainty; as when the speaker means to state something as an incontrovertible fact, as, "Kajee hereákiddaï," *most assuredly he spoke.* "Oodoob hereámén," *speak positively.*

The causal form is rendered by putting "chee" between the root and terminal—as "landateá," *to laugh,* makes "landacheeteá" *to cause to laugh;* "aïoomtea," *to hear,* "aïoomcheetea," *to cause to hear,* as in Hindustani *á* is inserted (with a few exceptions) for the same purpose, as Hunsna, Hunsána; Soonna, Soonána, &c.

Continuity (in the Imperative mood alone) is expressed by adding "akán" to the root, as "doobmén" *sit down,* "doobakánmen," *remain sitting;* "Aïoom mén," *listen,* "Aïoomakánmén," *continue listening.*

Finally, the thoroughly performing an act, is often rendered by adding the verb, "jōmeteá," *to eat,* to the root of the expletive verb, as "neljoomkidallé," *we all saw it (thoroughly);* "aïoomjōmmén," *listen (attentively);* "Geetee jōm-meén," *sleep (soundly).* And should the verb be of a violent nature (referring to some violent act) the particle "táb" between the root and inflection gives force to the meaning, as "Goïtabkiddaï," *he slew him (outright);* "Toltab kidallé," *we bound him* (forthwith); "Neertabmén," *Run (quickly) fly!* so "Ooiteá" is *to jump,* and "Ooitabtea," *to bound (as a tiger.)*

Ká before the pronoun gives the verb a negative form, as has been before explained in describing the Imperative mood.

There is no verb "*to have,*" possession being denoted in the same manner as in Hindustani, *I have,* "Eengtra minna"—"Méré pas hye."

From the foregoing remarks may be gathered, that in the active or transitive voice

The present terminal is, "*Tunna.*"
The past, "*Kidda, tudda, lidda, kenna* or *keea.*"

In the Neuter Voice.

The present terminal is, "*akênna.*"
The past, "*ièna* or *lèna;*"

In Either Voice.

The conditional, subjunctive, or potential mood terminate in "*redo*" or "*hedrado,*"

all these terminals being of course subject to the inflections of their pronouns, which are, as has been said, as often affixed as prefixed.

A nondescript species of Verb is used in rendering the sentence "*what shall or can, I, (thou, he, &c.) do ?*"

Future and Present.

Ch'eeng chikȳa,	*what shall or can*	*I,*	*do ?*
Chee'm chikya,		*Thou,*	
Chee chikȳa,		*He,*	
Cheeboo chikya,		*We all,*	
Chee'lé chikya,		*We,*	
Chee'pé chikȳa,		*You,*	
Chee'ben chikȳa,		*You two,*	
Chee'ko chikȳa,		*They,*	
Chee'king chikȳa,		*They two,*	
Chee'ling chikȳa,		*We two,*	

Past tense.

Chee'ng chikakidda, *what could I have done ?* &c. &c. &c.

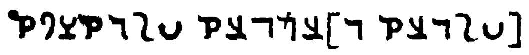
The verb "*to be able*" is rendered by "Dȳtea" in its moods and tenses, as, "Niádo eeng bȳdȳa," *I can make this ;* "Umdokadȳa," *you cannot ;* "K'áï dȳoá," *he will not be able.*

Many little exceptions and variations occur to these general rules, which it would be impossible to become familiar with, without constant practice in their arbitrary use ; but the foregoing remarks comprise all that would be of practical utility. The constant elision and confluence of words beginning and ending with vowels must be remembered, and that the particle *do,* has no meaning whatever. This will render the examples above given to the different rules simple and illustrative.

Note.—The Vocabulary, and Dialogues in the Ho language will be published in No. 107. I have had 50 copies extra of the Grammatical construction, Vocabulary, and Dialogues of the Ho language struck off, and shall be happy to distribute them (gratis) to parties desiring to have them.

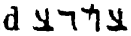
NOTE, *to be appended to my account of the coins of Mayas, in the article on " Some New Bactrian Coins," No.* 105.

In the Journal of the Asiatic Society, vol. iv. plate 21, No. 4, there is a sketch of a square copper coin of large size, which Mr. James Prinsep attributed to Antimachus. M. Jacquet (Jour. Asiatique, February 1836, p. 170, No. 48,) thought that it belonged either to Lysias or to Philoxenes; and M. Raoul-Rochette (J. des S. March 1836, p. 131, note 2,) recognized it as a coin of Philoxenes, from its native legend. The coin, however appears to me to belong to Mayas; the Bactrian Pali legend being plainly



[*Maharajasa ra*] *jatirájasa mahatasa Máasa*.

" [Coin of the great king, the king] of kings, the mighty Mayas;" and from this the Greek legend is readily completed—ΒΑΣΙΛΕΩΣ ΒΑΣΙΛΕΩΝ ΜΕΓΑΛΟΥ ΜΑΥΟΥ.

Dr. Chapman possesses a duplicate of this coin, which has ΑΣΙΛΕΩΣ ΒΑΣΙΛ .... ΑΥΟ, on the obverse; and ... [*ra*] *jatiraja* [*sa*], on the reverse.

It is a curious fact, that the copper coins of the earlier Bactrian princes are, in comparison to the silver coins, extremely scarce. Thus of Euthydemus there are but a few copper pieces known, and all of one single type. Of Demetrius there are, I believe, but two copper coins yet known, both of which are in the possession of Captain Hay, and I hope shortly to make them public. Of Antimachus not a single specimen has yet been found to my knowledge, and yet his silver coins are moderately common.

A. CUNNINGHAM.

This note to Lieut. A. Cunningham's interesting paper, published in my last number, reached me after the sheets had been struck off.

A Third Memoir with reference to the Theory of the Law of Storms in India; being, RESEARCHES *relating to the Hurricane in the Bay of Bengal, and at Cuttack, from 27th April to 1st May* 1840.—*By* HENRY PIDDINGTON, ESQ.

On the 30*th April* the station of Pooree (or Juggernauth) in Cuttack, was visited by an awful Hurricane, which destroyed almost every house, Native and European. It was subsequently learnt by the arrival of the ship Nusserath Shaw, with troops on board, dismasted, that several of the ships of the China expedition, which had sailed a short time previous, had suffered, and that the storm had extended across the Bay from near the Andaman Islands, if not to the eastward of them, in about a NW. direction to Pooree. It seems also to have travelled as far as Kurnaul, inland.

Our documents for the investigation of the track of this storm, amount to about thirty logs and reports of different kinds, the which, preserving always the expressions of the writers in all that is essential, I have abridged into as small a compass as possible; and I have, as before, condensed the whole into a table at noon; giving thus a view of the contrasts which the weather presents in different parts of the Bay, at nearly the same moment of time, the difference of Longitude being too small to require any correction of moment. I regret not having been able to add to this Memoir the logs of several of the ships of the expedition, such as the Marion, Isabella Robertson, and others; but as they have not been forwarded to me, I have thought the delay not worth incurring, as it is not possible to say when they may return to this port. Our evidence for the track of the storm will, I hope, be found tolerably complete, from its centre having on different days passed over, or close to, five ships, and to one station on shore. We are thus enabled to mark its route with greater exactness, for a longer time, and to a greater distance, than any of the preceding ones hitherto investigated. As in the foregoing Memoirs the logs and tables are followed by a summary view, stating the grounds upon which the track of the storm, the size of the vortex, and its rate of motion are laid down. The general reader, to whom the professional details are tedious, will find her I trust that nothing has been assumed without due amount of proof. The seaman can judge for himself.

Extract from the Log of the Ship "Nusserath Shaw," Capt. Edwards, bound from Calcutta to Singapore and China, with troops on board. Reduced to Civil time.

27*th April*, 1840. At midnight, light airs and fine, hot, sultry weather; wind SEbS.; at 4 A.M. EbN.; at 8, increasing; and at noon frequent hard squalls. Lat. Obs. 16° 2′ N. Long. Chron. 91° 21′ E. P.M. strong breezes ENE. to midnight, with dark cloudy weather and increasing sea.

28th April. Wind ENE. to noon. 7 A.M. lost maintopsail. 9 A.M. increasing gale; lost fore and main topgallant mast and head of main topmast. 10, gale increasing; lost mizen mast, boats, &c. At 11, heavy white squall. Noon, blowing a perfect hurricane; three guns lost overboard; no one able to go aloft. From 7 A.M. lying to under bare poles, with wind to the SE. Noon, Lat. account 14° 26′ 23″ N. Long. 91° 34′ E. P.M. blowing a hurricane; all the hatches battened down. Wind ENE. At 3 P.M. it shifted suddenly round to SW., laying the vessel gunnel under, with sea awfully high. Midnight, the same, and frequent squalls; vessel a perfect wreck, with all the braces, &c. gone.

29th April. From midnight lying to. 1 A.M. wind SSW. Noon, squally and rain. Lat. Obs. 15° 23′ N., Long. 90° 31′ E. Wind SbW. P.M. fresh gales and heavy weather, with dreadful heavy gusts of wind and squalls; sea breaking over the ship; 3½ feet water in the hold. At 8, weather as before. Midnight, less wind and sea, but ship labouring dreadfully; lying to throughout, with wind to the westward.

30th April. 1 A.M. Ship rolling dreadfully; still lying to. At 4, very squally, and fresh gales, with dark cloudy weather. Noon, Lat. 15° 31′ N. Long. 90° 11′ E. P.M. fresh gales with a heavy cross sea; wind SE.; bore up for Calcutta.

Extract from the Barque "Tenasserim's" Log Book, by Capt. T. Tapley, bound from Calcutta to Rangoon. Reduced to Civil time.

27th April, 1840. First part, light variable winds from the SSE. and suddenly shifting ENE. Midnight calm, sea smooth; last part of part of this day, strong fresh breeze eastward, smooth water.

Long. Chron. Noon,... ... ... 91° 50′ E.
Lat. Obs. ... ... 17° 40′ N.

Noon. This day cloudy; wind from the eastward; about a seven and eight knot breeze.

1. P.M. Strong breezes eastward, cloudy sky, and unsettled weather. Sunset, strong breezes and cloudy, with a threatening appearance to the eastward. At 8, made the ship snug. Midnight strong breezes from EbS½S., with a very threatening appearance; breeze gradually increasing, and coming in strong gusts and squalls.

28th April.—At 4 A.M. weather more threatening and a heavy sea getting up from the eastward. Daylight, wind SE. having every appearance of a gale, and blowing very hard, made all snug for bad weather. At 8, blowing a severe gale; sea at this time tremendous, battened a double tarpaulin fore and aft. Sea making a continual breach over the ship, and blowing very hard. Noon, heavy gale, ship labouring much, was obliged to keep the close-reefed topsail on her, owing to the heavy weather lurches; sea making a continued roll over the vessel; gale increasing. Sun obscured. During the whole of this twenty-four hours ship was sailing to the southward. P. M. heavy gale from SE. and varying to SSE. with a terrific sea on making a awful breach over the ship; going 2½ knots through the water up to 4 A.M. Course SbW. to SW. From 4 A.M. to noon, ship's head to NE. and ENE.; having wore round. Carried away one of the channel plates. Midnight ship rolling heavy, taking the sea in on both sides.

29th April, 4 A.M. Wind a little more moderate, but sea still continuing the same. Set reefed foresail to steady the ship. Noon rather clear, but gale still blowing hard. Wind SE.

Lat. Obs. Noon, ...	16° 32′ N.
Long. Obs. Noon, ...	91° 02′ E.

At 9, a brig passed, scudding under a foresail only, with topgallant mast on deck. 1 P.M. up foresail; a very threatening appearance to the southward. At 2-30, *wore ship to the SW., at the same time, to clear a whirlwind. By this manœuvre allowed the whirlwind to pass about 200 yards on the lee quarter; at this time blowing a perfect hurricane.* Wind SSE. and S. Furled every thing to a storm main trysail, and hove the ship to; torrents of rain; sea making a constant breach over the ship. At 5 P.M. more moderate; set the close-reefed topsails, and at 10-30, wore ship to the ESE. Sea still continued high, and a cross head sea, owing to shift of wind in the whirlwind.

30th April. Daylight, more moderate. Wind SSE. Wore round to the SW.; sea still running high and confused. A.M. weather clearing up a little.

Noon Obs., Lat.	16° 21′ N.
Ditto Long.	91° 50′ E.

Noon, moderate.

The phænomenon which Capt. Tapley describes in the log of the 29th, and which I have printed in italics, I thought so extraordinary that I requested of him a more particular account of it, and the following is his very graphic description of this awful addition to the fury of a tempest, which is, I believe, quite new in our naval records. A whirlwind coming down upon a vessel, lying to, in the midst of a hurricane, must, one would think, carry inevitable destruction with it,* should it fall upon her. The Freak seems to have lost her foremast in one, as will be seen by her log. Capt. Tapley says, "I have much pleasure in giving you answers to your inquiries, as nearly as I can. At 1 P.M. *30th April,* by Nautical time, (but by Civil time the 29th,) a very threatening appearance to the Southward; ship's head east, a terrific squall from the SSE. rising very rapidly, and having a very blowing appearance. When the squall was within 2 miles of the ship, perceived a heaving whirlwind flying to the NNW.; immediately wore ship to the SW., or first to the westward, to give the ship way through the water; by doing so, allowed the whirlwind to pass the ship; when passed, brought the ship to the wind, clued every thing up, and furled all. Soon after, about 10 minutes, the squall took the ship from the SSE. Ship's head about SW., blowing a complete hurricane, could not see half the length of the vessel on the water, owing to the tops of the sea being blown by the force of the wind, and a deluge of rain at the same time. I cannot remember *how** it was turning, *as we were anxious to turn out of it;* it was going round at a furious rate, and disappeared in the rain to the NNW. I do not recollect any lightning at the time.† We could not discern it until it had approached pretty close, and then the most we saw was the foaming of the water travelling up in a rapid progress. The day had been fine and a little clear for a few hours, but blowing hard. At the time this squall appeared, the sky all round assumed a threatening appearance, and squalls gathered and rose rapidly. After this severe squall, the weather kept bad during the remainder of the 24 hours."

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* Col. Reid refers to an instance of this kind, but I cannot now find the passage again.—H. P.

Extract from the Log of the Barque "Amelia Thompson" from Penang, towards Madras.

Monday, 27*th April,* 1840. Civil time. P.M. Strong breezes, with heavy
Wind. squalls of wind and rain.
West. A.M. Hard gales with rain.
8 A.M. More moderate.
Noon. Moderate and fine.
Bar. 29·55—Lat. Obs. 4° 14′ N. Long. 88° 18′ E.
West. P.M. Strong breezes and squally.
WbS. 8 P.M. Heavy squalls with rain.
WSW. WbN. } 8-30. Wind veered to the WNW; wore ship to WSW.
Tuesday, 28*th April,* 1840. A. M. Ditto, weather at daylight more
West. moderate.
WSW. Noon. Moderate weather.
Lat Obs. 4° 25′ N. Long. 87° 48′ E.

The Barque "Clarissa" from Penang to Madras experienced no bad weather until the 28*th of April,* 1840. At noon on that day, she was in 7° 1′ N. and 87° 56′ E.; it had been blowing hard from West to WSW. in squalls, with rain and a high sea, but did not approach to a gale. On the *29th*, the weather became moderate, the swell high and confused.

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* † These are replies to my queries.—H. P.

The Barque "Ganges" from Malacca to Madras. On the *26th of April*, 1840, in 6° 37′ N and 95° 56′ E. a fresh gale commenced at SSW. veering to the SW. On the *27th* she hove to under storm staysails; the Barometer fell to 29·50, blowing a hard gale from SSW. to SW. At noon, still lying to in Lat 7° 10′ N. 95° 18′ E. Bar. 29·60. On the *28th* the gale abated, and at noon the weather cleared up. Lat 8° 7′ N. 94° 33′ E. Bar. 29·80.

Extract from the Log of the Brig "Freak," from Calcutta to Singapore; communicated by Captain Smoult. Reduced to Civil time.

19th April, 1840.—Left the Pilot at the Sand Heads, and carried the wind about SSW., standing to S. Eastward. The wind then became light, and veered from SSE. to SW.; the weather continued light and variable with flashes of lightning, in the north after sunset. On the *20th*, Lat. 20° 31′ N. Long. 88° 35′ E. On the *26th*, Lat. 19° 23′ N. Long. 88° 40′ E. light winds, between SW. and South, with strong northerly currents until *27th*, when the wind hauled round to the East. Lat. 18° 56′ N. Long. 88° 30′ E. P.M. Moderate breeze with fine clear weather. At 8, the wind increased, and weather became cloudy and threatening, which obliged us to take in all steering sails; the wind *moderated at midnight;* set the steering sails.

28th April. At 10 A.M. the breeze freshened again, took in all steering sails and royals, the Barometer standing about 29·30 steady. Lat. 17° 40′ N. Long. 88° 32′ E. P.M. strong breeze and threatening weather, *the Barometer vibrating very much*,* dark heavy clouds rising in the north, wearing the appearance of ragged edges.

Commenced making preparation for a gale of wind by sending down the lofty yards, and securing spars, hatchways, boats, &c. and double gasketting the sails as we furled them. At 6. P.M. we had got every sail stowed, except the close-reefed fore topsail, the gale increasing so rapidly from NNE. that it obliged us to stow the main topsail, without reefing; the sea rising in proportion. The wind gradually veered round to the north, and blew from that quarter till midnight, (Lat. Acc. 15° 46′ N. Long. 88° 18′ East) when the wind chopped round to the NW. suddenly, and blew with double force, which threw the ship on her broadside; the helm was immediately placed a-weather, but was rendered useless, owing to the position of the ship. She lay dormant for some time, the tempest roaring with great fury, and sea flying over us in foam. The lightning mingling gave it the appearance of fire and water; the roaring of the wind prevented us distinguishing whether it thundered or not. We were soon enabled to brace the fore yard forward, which in a trough of a sea wore her before the wind, heading per compass SE. by E. directly in the trough of a tremendous sea, knocked up by the wind from North, which rendered our position most dangerous, as every sea appeared coming on board; in a short time she broached to, with her head north. The wind veering to the westward, and blowing with great fury, the ship was again thrown on her side, but being head to sea, lay much easier (the Barometer sunk to 27·25 in the gale). The foam flying so thick as to extinguish every object except at intervals; a supposed break in the sky afterwards proved to be the top of the sea!

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* The italics are mine. This *vibrating* of the Barometer is frequently noticed in the Logs in Col. Reid's work, and seems an infallible sign. In Professor Barlow's account of the water barometer it is particularly noticed as "resembling the breathings of some huge animal."—H. P.

29th April. About one in the morning, a sudden and awful gust of wind carried away the foremast. It was accompanied with a vivid flash of lightning, which enabled us to see the mast and yards carried up in the air, as if in a whirlwind, and then fall on deck with such violence that the fore yard arm stove in the fore hatchway, and went chock over into the weather wing of the ship, leaving the other arm extended to leeward. To this the wreck of the mast and other yards were attached, acting as a lever on the ship, keeping her side down. It remained thus the rest of the night, in spite of all our endeavours to cut and clear it away from the ship. The furled sails blew away by piece-meal; the quarter boat filled with water and broke away; heavy seas breaking on board, and the darkness so intense, that we could not see a yard before us; the water rushing down the hatchways, against all precaution, carried away the larboard bulwark and several stanchions, did the round house much injury, and every thing in its way; we found much difficulty in getting the crew to the pumps. Found a great quantity of water in the hold; considered it prudent to throw over some of the cargo in order to lighten the ship, as the water forced down the fore hatchway in great quantities. The wreck of the masts aft beating about in a most fearful manner, endangering the main mast, the only spar we had to work the ship with in running down to the Sand Heads. At daylight, wind SW.; the crew kept constantly at the pumps. Barometer rising very slowly, being at 27·30. Noon, sun obscure, Lat. account 16° 2′ N. Long. 88° 36′ E. P.M. wind SW. still blowing furiously, and ship labouring heavily, shipping water over all; showers of rain at intervals, hands kept constantly at the pumps, and clearing away the wreck. The same weather throughout.

30th April. At daylight loosed the peak of the main sail, hoisted it up a few feet, and hoisted the foretopmast staysail to the throat halliards, in order to keep her to the wind; this soon blew away, together with a spare jib, which was hoisted to the main stay. Constantly employed pumping. Noon a little more moderate. Lat. account 16° 41′ N. Long. 88° 0′ E., cut away the wreck from the jib-boom, which was sprung, bent a spare foresail to the mainyard and set it; got a preventer main topmast stay up, and otherwise repaired damages. Bore up for Calcutta.

1st May. Midnight squally with rain and thick cloudy weather, at daylight people employed setting up rigging, &c. and getting up a main topsail. Noon moderate breeze with passing clouds. Lat. Obs. 17° 26′ N. Long. 87° 47′ E. Barometer 28·30.

May 4th. At 4. P.M. got a pilot. During this gale, and previous to it, the following phœnomenon manifested itself; that of the clouds rising rapidly in the north, appearing ragged and black, with white feathery edges, and stretching to the southward in long tails; the sea becoming tumultuous in, and as soon as the gale reached us the atmosphere becoming very sultry. Barometer stood at noon about 29.30, or about the standard height previous to the gale, and now in Calcutta, about 29·20.*

Extract from the Log of the Brig "Vectis," R. Isemonger, Commander, bound from Calcutta to the Cape. Reduced to Civil time.

28th April.—At noon, fresh breezes east, and cloudy. Lat. 18° 37′ N. Long. 87° 55′E. Standing south, going 6 knots. P.M. strong breezes; dull hazy weather. At 8 P.M. preparing for bad weather. Midnight, wind ENE. blowing a gale; head SbW.

29th April.—1 A.M. Increasing gale, scudded; and at 6 A.M. hove to under bare poles. At 7 A.M. full hurricane and heavy sea; lost jibboom; shipped a heavy sea, which hove the vessel on her beam ends, and cleared the deck, bulwarks, &c.: Cut away the topmasts. Noon, the same weather, wind marked as *variable*†, Lat. 16° 58′ N. Long. 88° 4′ E. At 2 P.M. began to moderate. Wind marked as veering to the Northward, then to the Westward. At 8 P.M. it stood at SSW. 2 feet water in the well.

30th April.—A.M. to Noon, heavy cross sea. Lat. 17° 40′ N. Long. 88° 10′ E. Wind SbW. Gale continuing, and very high sea.

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* It is due to Captain Smoult to say, that this very valuable account of the storm was accompanied with a capital MSS. chart, on which the vessel's track was accurately laid down.—H.P.

† In the confusion of a small vessel on her beam ends it is probable no one could say how the wind was for some hours; or it might have been veering rapidly, and is thus marked variable

1st May.—4 A.M. more moderate, but heavy squalls with rain. Wind SbW. Noon Lat. 18° 43′ N. Long. 88° 18′ E. Wind SSW. fresh gales and squally, bore up for Calcutta.

2nd May.—Noon Lat. 19° 54′ N. Long. 88° 29′ E.

"George and Mary;" Captain Golightly.

An imperfect account of the weather experienced by the "George and Mary," Captain Golightly, states, that upon the *28th April* at Noon, the wind veered from SW. to East with a fine steady breeze, to which all sails were set. At 6 P.M. it became cloudy, with a heavy bank to the NW. The wind shortly after shifted to North in a very heavy squall, lasting for three-quarters of an hour, to which every thing was let go, and the vessel was than prepared for bad weather. The wind continued to veer to the NW. and at daylight of the *29th,* had increased in violence. At noon of the *29th,* Lat. was *about* 16° N. Long. 84° 30′ E.* the gale being at its height, and blowing a severe hurricane from the NNW. which lasted for six hours; the wind then veered to the East, then to ESE., to S. and SSW. and at daylight on the *30th* began to moderate, leaving a "nasty cross sea."

Extract from the Log of the Barque "Flowers of Ugie" from Calcutta to the Mauritius. Reduced to Civil time.

27th April, 1840.—At noon in Lat. 19° 52′ N. Long. 89° 24′ E. at which time and till midnight, fine clear weather. Wind SE., standing to the southward.

28th April.—At noon smart breeze ESE. and clear. Lat. 19° 19′ N. Long. 88° 22′ E. 3 P.M. Bar. 29·17, breeze increasing fast from ESE. veering to East at 7 P.M. At 6, very bad appearance to the SE., reduced sail. Midnight, strong gales; Bar. 29·11. Ship going 5 knots, and standing to the SW.

29th April.—At 4 A.M. squally with rain. At 7, Bar. 28·19. At 9, gale increasing, furled every thing. At 11, very heavy gales, with heavy rain and dark gloomy weather; hove the ship to on the larboard tack, under bare poles, wind being at NE. at 10; and North at 11. Very heavy sea breaking on board, and sweeping every thing away. Noon very bad weather, vessel straining much, and making much water. Bar 28·15. From midnight to 11 A.M., she had run 76 miles SWbS½S. Lat. 17° 15′ N. Long. 86° 43′ E. by acct. at noon. P.M. Gale still increasing, with a very heavy sea, and vessel lying nearly on her beam ends, so much so, that the pumps would not suck water. Wind NW. at 1 P.M. Bar. 28·36; At 3 P.M. wind West. At 5, SW. At 8 South, at which it continued till midnight. Bar. at 7 P.M. 28·41; at midnight 28·19. At 4 P.M. tremendous gales, with heavy rain and gloomy weather; at midnight gale abating a little.

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* This is apparently a rough guess from memory, the account being written at the Captain's request by an assistant of the house to which he was consigned, the log book being on board the ship, and the ship on its way down the river.

30th April.—6 A.M. more moderate, but at noon very heavy gales and bad weather, Lat. 17° 48′ N. Long. 86° 53′ E. Bar. 29.11. P.M. Strong gales and cloudy; saw a vessel standing to the northward with loss of foremast and mizen mast. At 9, Noon, moderate, with lightning to the NW. Wind South till midnight,, vessel lying to, head West.

1st May.—Midnight cloudy weather, wind South till noon, when moderate with fine weather, Lat. 18° 23′ N. Long. 86° 58′ by Acct.

2nd. May.—At noon in Lat. 18° 44′ N. Long. 88° 6′ East.*

Extract from the Log Book of the Ship "La Belle Alliance," Capt. Arkcoll: from Madras to Calcutta. Reduced to Civil time.

29th April, 1840.—Midnight; moderate breezes and squally, latter part a fresh gale with hard squalls and showers of rain.

28th. At 3 P.M. the Lighthouse on False Point NWbN, at 4, the lighthouse WbN; at 5-30 tacked to the SE; at 6, the Lighthouse WbS½S. and the land at WbN. At midnight tacked to the Northward; at 3-30 A.M. tacked to the E; at 5, the light WNW. At daylight, an increasing breeze from NE. and squally. At Noon an increasing gale with hard squalls, distance on the log 71 miles. Lat. Obs. none. P.M. A strong gale with hard squalls and thick hazy weather; latterly an increasing gale with violent gusts of wind. At Midnight a violent gale, with violent gusts of wind.

30th April.—1 A.M. to 5 A.M. The gale increasing, with violent gusts of wind and heavy rain; furled topsails; ship laying to under storm main staysail. At 6 A.M. ship plunging deep, with a heavy confused sea; carried away the flying jibboom; cut away the wreck. At 8 A.M. trying to strike topgallant masts; ship laying over, and plunging deep could not, and obliged to cut away fore and main topgallant masts to save the topmasts; in so doing the head of the foretopmast broke above the rigging;

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* Bar. of the ship "Flowers of Ugie" at noon, 18th August in Calcutta at ten A.M. was .. .. 29·45
The Barometer at the Surveyor General's Office. .. .. 29·56

Difference to add. .. .. 0·11
This correction has been made to the Bar. heights given in the log.

a heavy confused sea. At 9 A.M. *a sudden calm*, struck main topgallant mast; ship labouring much, from the heavy sea. At 10, a violent gale from SSW. with most awful gusts of wind and heavy rain, the ship laying to under storm main staysail. At noon, gale continuing with equal violence. P.M. A violent gale, with awful gusts of wind, and a heavy sea. Moderating after midnight, with thick hazy weather. At 1 P.M. in a sudden gust of wind and rain, the storm main staysail blew away, the ship lying to under bare poles; heavy and violent gusts of wind and rain, during the day. At 2 P.M. in a heavy gust of wind, the ship labouring much, the starboard boat's davit gave way. Cut away the boat to clear wreck.—Ship lying to under bare poles. Violent gusts of wind from SSW. with heavy rain and thick hazy weather during the night.

1st May. At 5 A.M. the weather moderating, set close-reefed topsails. At noon the weather moderating and the sea going down; thick hazy weather.

30th April,	10	P.M.	Bar. 29·40
	12	......	...... 29·20
	3	A.M.	...... 29·00
	5	......	...... 28·10
	8	......	...... 28·30
	12	......	...... 28·60
1st May,	4	P.M.	...... 28·90
	9	......	...... 29·10
	12	......	...... 29·30

Lat. Obs. 19·19 N.

The first of the gale was from the NE., and at 11 A.M. on the *30th*, it suddenly shifted to the southward, and blew if any thing heavier than before.

I am indebted for this extract, which is so highly interesting, as marking the direct trask of the storm towards Pooree (Juggernauth) to Capt. Biden, Master Attendant of Madras, but I could not obtain a sight of the ship's log while at Calcutta; so that her exact position at the time of the shift of wind, is not so certain as it might have been; neither could I obtain a comparison from her Barometer.

Abstract of the Log of the ship "Christopher Rawson," Capt. Smellie. Reduced to Civil time.

On the 27th, exchanged numbers with the Marion, Capt. Pope, in Lat. 17° 15′ 30″, N. *Bar.* 29·80; the Bar. down 4 lines, and the weather very oppressive. Light SSE. winds and sultry. Barometer falling fast.

28th April. Midnight, heavy gathering clouds in the SE. and threatening look. At 10 A.M. a very heavy squall from East; I consider this the commencement of the gale; the scud flying in confused masses, and a number of sand birds on the rigging. At noon, heavy appearance of weather. Lat. Obs. 19° 29′ 15″ N. Bar. 29·40. P.M. Blowing fresh from E. and ESE., the Barometer 29·35, and every appearance of worse weather; making a bold push for the Pilot. Midnight and until day-dawn, constant heavy squalls and much heavy rain.

29th April. At 4 A.M. sounded in 17 fathoms; at 5 sounded in 10 fathoms, and by two excellent Chronometers made the Outer Floating Light bear from us due west 15 miles distant; finding the sea too high to receive a pilot close-reefed the top sails and courses; under this sail stood out South; wind abeam at East, gale increasing and the sea rising fast. At 10 A.M. *a tremendous sea spread from the SSW.* and a heavy ground swell on our beam East; preparing for bad weather. At noon gale very heavy, no sun, suppose ourselves SSW. from the Floating Light, distant 30 miles.

Gale increasing at ESE. and East in the heavy squalls; a very high confused sea often breaking over all. At midnight sprung fore yard; sounded in 30 fathoms.

30th April. 2 A.M. Blowing a hurricane, sprung our main mast in the deck partners; the sea washing away our large cutter, davits and all, and making a clear breach over all; both pumps going. The wind SE. and veering round gradually to the southward. At day-dawn observed some broken spars and short pieces of plank passing us; shipped a heavy sea, broke the lashings of the skylight, which unshipped, and nearly filled our cabin with water. Noon., Lat. Obs. 20° 28′ N. A heavy sea struck the ship aft, and injured our rudder head. Bar. 28·80.

Bar. 28·90; gale continues heavy; ship under bare poles, lying in the trough of the sea, very uneasy. Wind SSE., ship's head SWbW. Having blown our storm staysails away got a bolt of new canvas in the mizen rigging.

1st May. At day-dawn ship on her beam ends, and the sea making a fair breach over all; the water much discoloured; sounded in 16 fathoms on the edge of Point Palmiras Reef, the wind suddenly shifting into the SSW. wore ship to the SE. Sun obscured at Noon; no vessels in sight.

Some attempts at a clear-up; ship lying helpless in the trough of the sea; Bar. rose 4 lines. At 2 P.M. set the close-reefed topsails. Sunset clear weather, but destructive sea, midnight heavy squalls from SW.

2nd May. Day-dawn, moderating fast. Out reefs, and stood to the WNW. At 7 sighted a Pilot vessel. At 8° 30′ obtained a pilot. From our position on the commencement of the gale, I supposed myself in the centre of the Bay during the worst part of it, and allowed 36 hours drift under bare poles before I looked for shoal water. My astonishment was great at finding the ship, early on the 1st, in 16 fathoms on the reef; and I can only account for it by supposing the easterly gale had caused a current, or set, to the westward of at least 4 miles per hour; which may perhaps account for so many vessels getting over on the Point, as I had the advantage of 15 miles easting at its commencement.

Balasore.

A letter from Balasore, dated 4th inst., says :—

"We have just escaped a severe hurricane; it blew very hard on the night of the *30th*, and the tide rose very high, but luckily the wind did not last long enough to drive the sea over the country. At Pooree they have felt the hurricane most severely. I hear that all the houses and the Government Cutcheries have been blown to the ground, and much damage has been sustained; great part of the native town has been destroyed, and several lives lost. When the circuit house fell, two men were buried, and escaped with broken legs. Pooree is full now, the gents from Cuttack having gone there to enjoy the cool breeze; they and the residents took refuge in the only house which stood the storm: the description of the scene is fearful. Mr. Ewart lost his Arab horse, buried in the ruins of the stable. The natives declare that Juggernauth's august presence alone prevented the sea from washing away the town. The storm was felt at Cuttack also severely, and I much fear it has been destructive on the whole line of coast. This is a true version I think, and you may perhaps like to give the readers of the *Englishman* the news."—*Englishman, 7th May,* 1840.

Report from Captain A. Bond, Master Attendant, Balasore.

29th April, ...	Bar.	29.66	Ther.	85°	NE. Rain and squally,
30th Ditto, ditto, ...		29.57	ditto,	82	NE. Rain and puffy,
1*st May,* ditto, 8 A.M.		29.25	ditto,	81	E. Strong gusts of wind,
Ditto, 1 P.M.		29.43	ditto,	82	NE. and East.

On the 1*st May,* A.M.; at Balasore; strong gusts of wind, with continual rain, inclining to a gale till 8 A.M., when the wind veered from NE. to South, and cleared up at SW. at 9 A.M.

At Budruck, 32 miles WSW. of Balasore, the wind stronger, with flying clouds to the SW.

I was at Budruck on the morning of the gale, and from the log kept here, it was very similar to the one I kept there, in every respect.

The strength of the gale was felt more southerly at Pooree; and inland the rain appears to have been heavier, and the wind less.

The May gales have not affectd Balasore since May 1823. No vessels lost on the coast; several put into Chooramoon in distress.

A. Bond.

I am indebted for the following letter to Mr. Ewart, Magistrate of Pooree.

Your letter to Mr. Cumberland has been handed to me. During the storm, and for some weeks, Mr. Cumberland had been very unwell, and had ceased to keep a Meteorological Register. At the time of the storm, I and two other gentlemen were staying at our house. On comparing notes next day, we discovered that we differed in one material point, viz. which way the storm went round.

To the best of my remembrance, the South-west wind, which generally blows so steadily during part of February, March, April, May, and part of June, failed and became variable, hanging between South and East. The sky was very cloudy, and on Wednesday, 29th April, there were showers. On Wednesday afternoon the wind was very strong from NbE.; the rain and wind continued to increase during the night from ENE. On Thursday morning, 30*th April*, at daylight, it was blowing strong, but people went about their ordinary avocations. By 10 A.M. there was a gale from NE. At noon I went on my elephant to visit the various ladies who had come with their families, but without their husbands. The wind was so violent and gusty, that I found it necessary to hold fast by the pad-ropes, and the drifting rain and sand frequently made the elephant stand, and refuse to proceed. From 8 A.M. on Thursday, 30*th*, the rain was incessant. The wind continued to blow, with about the same violence, after 10 A.M. till evening from the North-east. It then veered to nearly North, and after hanging between N. and NE., at about 7½ P.M. *entirely lulled.* About 8, what we imagined the ordinary monsoon breeze began to blow from SW.; it however increased, and got round to nearer the West. By 9½ P.M. it blew from WSW. with far greater violence than it had from the other direction. Many houses had lost a portion of the thatch by the NE. wind, but almost all were destroyed by the West wind. It began to abate about 4 A.M. on Friday 1*st. May;* there were occasional gusts during the morning from SW., but our usual breeze blew pretty regularly; my impression was, that just before the lull on Thursday evening the wind was at NW. and went by the East to SW. This struck me particularly, because it was contrary to the received theory.

I fear this is a very vague account, but it is the best I can give.

Pooree,
30*th May*, 1840.

James K. Ewart.

NOTE.—It will readily be seen by those to whom the Theory of Storms is familiar, that the centre of the hurricane, as here described, must have passed over, or a very short distance to the South of the station. The discrepancy of opinions mentioned might easily occur at such a time, amongst gentlemen who were not seamen, and it is more than probable, that, at the centres of storms and near them, counter currents and eddies do occur; and that their changes are almost instantaneous; the main change was from about NNE. to SW. and at the centre this might have happened either way, without affecting the truth of the theory. H. P.

THE GREAT STORM IN ORISSA.

[*From a Correspondent at Pooree.*]

"On Thursday, the 30*th April*, one of the most violent storms ever remembered in Orissa visited the station of Pooree, and surrounding district. The wind blew very fresh from the North-east early in the morning, and towards the middle of the day increased so much, as to make every one take precautions to guard against its violence. The surf was unusually high and roaring, and approached the bungalows much nearer than was at all pleasant. Out-offices were levelled, and clouds of sand buried every thing. About 6 o'clock in the evening the wind lulled, when it was hoped that the worst was over, but the disasters of the day were as nothing in comparison with what the night brought. The wind suddenly shifted round to West and South-west, and recommenced in all its fury. Every one sat waiting for the worst, running from one room to another, as the house gave way, and when the general crash came, it was fearful.—The wind and rain so boisterous, that no one could stand erect exposed to them. Ladies then escaped to their palkees, anxiously awaiting the break of day. The darkness of the night totally prevented any communication of one house with another, and it was not until morning that the whole truth could be known. Alas! every bungalow in the station has been destroyed—not one is there that can possibly be inhabited. One solitary puckha-house stood the buffetting of the storm, as it would appear, intended as a refuge for the destitute. It was most providential that some families deserted their own houses during the afternoon and took shelter in any secure place they could find; for had they remained they must have perished. Entire roofs and walls came to the ground, other houses went piecemeal, rafters and thatch coming down, and some have disappeared altogether. Some ladies were obliged to desert their bungalows, and remain in their palkees on the sands the whole night. In fact, no one has escaped, and many have lost every thing they possess. The drift of the sand was so great, that every thing was buried several feet in it, and a most difficult task it has been to recover property so embedded. The ruins of the houses are almost unfit for repairs, except under a cost equal to the original expense of building, and the whole coast presents one scene of destruction. The city has suffered to a great extent; indeed every house has been blown down, but the immortal remains of Juggurnauth lie undisturbed in his celebrated temple. The surrounding villages have been equal sufferers, and a camp belonging to the revenue surveyor, about 20 miles distant, was totally destroyed. Large trees strew the road, and many lives have been lost in consequence. One family, of eight persons, were crushed under one tree; but the loss of life has been much less than could have been expected. I have not heard of more than forty altogether; but accounts may be brought in hereafter. Altogether the scene has been one I never wish to witness again, for independently of the great pecuniary loss, it has been an awful visitation, which those who have lived and experienced can alone comprehend. POOREE, *3rd May,* 1840."—*Englishman.*

Extracts from the Log Book of the Barque "Elephanta," of Greenock; from Clyde to Calcutta. Reduced to Civil time.

April 28th. Bar. 29·60. From midnight to 8 A.M., wind SE. to EbS. fresh breezes, and cloudy; a heavy swell from the SW. From 8 A.M. till noon, light winds and cloudy. At noon Lat. Obs. 15° 20′ N. Long. Chron. 84° 29′ E. The same till midnight.

29th. NE. fresh breezes and cloudy weather throughout; *a heavy swell from the Eastward;* the current has set the ship EbN. 20 miles these 24 hours. At noon Lat. 16° 24′ N. Long. Chron. 84° 22′ E. P.M. light winds and cloudy weather.

31st. A.M. Fresh breezes from SW. and cloudy, *with a great swell from the* NE.; the ship labouring and pitching very heavy. At Noon, cloudy, the land in sight bearing WbN. to NbW. supposed to be the Dolphin's Nose. At Noon, by very indifferent Obs. Lat. 17° 46′ N., Long. Chron. 84° 28′ E.; to midnight, moderate and fair.

1st May. A.M. SSW. Fresh breezes and cloudy; a swell from the SW. At Noon Lat. 18° 48′ N., Long. Chron. 85° 40′ E. P.M. moderate breezes and hazy weather.

Extract from the Log of the Schooner "Amelia," Captain Ross. Reduced to Civil time.

The "Amelia" was off the Sand Heads when the last gale commenced. Unfortunately during the gale the Barometer was injured, which prevents any correct information on that head, further than that it fell two-tenths the day previous to the gale.

29th April, 1840. At midnight, winds easterly, with light passing squalls. Outer Floating Light bearing EbN. 6 A.M. Wind easterly. Being now to the eastward of the Western Sea Reef, breeze increasing with heavy appearance to windward. Pilot apprehensive of bad weather, recommended standing to sea; stood to the South-eastward. Noon, winds ENE. blowing very hard and sea rising. P.M. winds ENE. increasing to a gale. Midnight, ditto, blowing a hard gale and heavy sea.

30th April. 6 A.M. Ditto as before, blowing with violence, and squalls with rain. Noon, ditto weather; shipping much water on deck; soundings in 62 fathoms. 6 P.M. wind east with heavy appearance to the south-eastward, with occasional heavy rain and hard squalls. Midnight, wind SE. with increased violence, now blowing with great fury. Our sails were blown out of the bolt ropes. *A cross turbulent sea rising in pyramids, and breaking over the vessel, while the force of the wind depressed her lee bulwarks under water.*[*] Soundings in 45 fathoms.

1st May. 6 A.M. Wind veering southerly, still blowing with fury and a great sea. 8 A.M. Wind SW. rather more moderate. Soundings in 20 fathoms. Wore to the Eastward. Noon, wind SW., gale abating. Found by Obs. that our situation is 15 miles to the southward of False Point in 22 fathoms; bore up for the river.

The two days previous to the gale, we had the wind from the South-eastward, light, with hazy weather, hot and sultry.

The gale commenced from the North-eastward, veering to the Eastward and South-eastward, at which point it blew with the greatest violence, and began to break up soon after it reached the South-west point.

During the gale the heaviest appearance of the sky was to the SE. and Southward. The upper clouds appearing to move N. and NW.[†] even while the wind was NE.

Extract from the Log of the H. C. F. L. V. "Beacon," C. Hudson, Commander.

April 29th, 1840.—A.M. Fresh SE. breeze and cloudy. 4 A.M. Breeze increasing; veering to ESE. cloudy unsettled weather. Daylight, increasing breezes at ESE. and cloudy unsettled weather, heavy sea. 8 A.M. Fresh breezes at Eastward, cloudy unsettled weather. Noon, strong breezes at East, veering to NE. with heavy squalls of wind and rain, threatening appearance. Noon to 4 P.M. blowing in heavy gusts from E. to NE. and ENE. heavy passing showers, and dark, cloudy, threatening appearance all round. Sunset, blowing hard at ENE. with passing showers, and very threatening appearances to the SE., heavy sea. 8 P.M. Blowing hard at ENE. with passing squalls and light showers, with dark cloudy threatening appearances all round. Midnight, moderating, ENE. breezes and cloudy unsettled appearances to the Eastward.

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[*] This is an instance of the possibility alluded to in p. 46 of my first Memoir, (p 645 Journal As. Soc. for August 1839.) If the shift of wind had been sudden, the vessel would have been laid down against the whole fury of the waves.

[†] This is somewhat equivocal, for it may mean *to* the N. and NW. or *from* the N. and NW. The observation is nevertheless important.

30*th April.* A.M. Strong breezes at East, with dark, cloudy, unsettled weather. Daylight, blowing hard at ESE. with very threatening appearances all round, and a heavy cross sea. 8 A.M. Strong breezes at ESE. and dark, cloudy, unsettled appearances to the eastward. 8 A.M. to Noon. wind veering from ESE. to East, with continual heavy squalls, and heavy rain, dark dismal clouds, and very threatening appearances all round, with a confused sea. 4 P.M. Strong breezes at East and EbS. with dark cloudy, unsettled weather. Sunset, strong breezes, veering from East to EbS, with dark dismal clouds, and threatening appearance to the SE. with heavy sea. 8 P.M. Strong breezes veering to SE., with dark dismal clouds and unsettled, with threatening appearances all round. Midnight, fresh breezes veering from SE. to SSE. with heavy passing squalls of wind and rain; unsettled appearances and lightning to the Southward, with distant thunder.

1*st May,* 1840.—A.M. Blowing very hard in squalls at SSE. dismal threatening appearances and passing showers, with very heavy sea. 4 A.M. Wind increasing to a gale at SSE. with a very heavy sea. Daylight, blowing a gale at SSE. with dismal threatening appearances. 8 A.M. Gale increasing at SSE. with very threatening appearance, and very heavy sea. Noon, blowing a heavy gale at SSE. very threatening appearance, sea still continuing. 4 P.M. Gale still continuing very heavy, weather clearing up a little; sea still continuing heavy. 8 P.M. Moderate breezes veering to SbW. and SSW. with passing squalls of wind and rain, and unsettled weather, with lightning to the SW. Sunset, moderating a little, and wind veering to Southward and SbW. with passing squalls of wind and rain, sea continuing. Midnight, blowing hard at SSW. and SW. with heavy passing squalls of wind and rain, with dark cloudy weather all round, and lightning to the SW.

Mr. Hudson adds the following remarks. "As the variation of the wind and the appearances of the weather, were correctly stated during the gale, the only remarks I have to make thereon, are, that in every gale I have experienced here, it has invariably began at the Northward, veering to the Eastward, sometimes as far as North-east and back again,* generally breaking up at SW.; the heaviest part of the gale generally being between SE. and South, except the last, the heaviest of which was at WSW., the point at which it broke up."

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* So in the MSS.

Extract from the Log of the H. C. L. V. "Hope;" Eastern Channel. W. Clark, Commander.

Date.	Winds and Weather.	Bar.	Ther.	Remarks.
Wednesday, April 29th, 1840.	A.M. Fresh Easterly breezes, dark, cloudy threatening weather, and lightning,			H. C. L. V. Hope Eastern Channel lying at Anchor 140 fathoms cable.
	3 A.M. Heavy gusts from the Eastward, and passing squalls.			
	Daylight. Strong Easterly breezes and ditto weather.			
	8 A.M. Fresh breezes and cloudy, with passing squalls and rain.	29·67	81·	
	Noon. Strong Easterly breezes and ditto ditto weather; rain at times.	29·65	81·	
	Sunset. Ditto winds and weather.			
	8 P.M. Ditto winds and weather.	29·65	81·	
	Midnight, heavy passing squalls from the Eastward, and ditto weather.			
Thursday, April 30th, 1840.	A.M. Heavy squalls from Eastward, and threatening weather; passing squalls and very heavy sea on.			140 fathoms cable.
	Daylight. Strong East to ESEasterly breezes, cloudy and squally weather.			
	8 A.M. Ditto cloudy, and threatening appearances all round.	29·60	81·	
	Noon. Strong ESEasterly breezes and ditto weather.	29·60	82·	
	Sunset. Blowing hard from East to ES. Easterly, with passing squalls and rain.			
	8 P.M. Blowing hard at SE. Ditto weather.	29·55	81·	
	Midnight. Ditto from SE. to SSE. and ditto weather.			
Friday, May 1st, 1840.	A.M. Blowing a moderate gale at ESE. with heavy gusts at intervals, and rain; weather still threatening; shipping much water.			200 fathoms cable.
	Daylight. Gale increasing at SE. battened down the hatches and made all snug; veered to 200 fathoms cable.			
	8 A.M. gale still continuing at SE. with frequent squalls and rain.	29·50	81·	
	Noon. Moderating a little, veering to the southward, frequent squalls of wind and rain, and heavy sea on.	29·53	83·	
	4 P.M. Decreasing at SSW. very unsettled appearances all round; very heavy sea on.			
	Sunset. Strong SSWesterly breezes, with cloudy and threatening appearances all round.			
	8 P.M. Ditto ditto weather.	29·67	81·	
	10 P.M. Wind shifted suddenly round SSW. to NW. with threatening appearances and much lightning.			
	Midnight. Light variable breezes from NW. to SW. cloudy and threatening appearances to the Westward, and rain.			

Tabular View of the Gale of 29th April, to 2d May, 1840, at the Pilot Station off the Sand Heads.

Date, Civil time.	Names of Vessels.	Situation.	Winds, Weather, and Remarks.
April 29th, 1840.	Megna, H. C. P. V.	At anchor 18 fathoms Western Sea Reef.	On the 28th Light breezes from SE. to ESE. First part, wind ENE.; middle and latter East, blowing hard. At daylight squally, and stormy appearance to the Eastward, wind from ENE. Strong Easterly breezes with rain in the evening, and a heavy sea. Bar. fallen to 29·54 at 7-30 P. M. Veered to 90 fs. cable.
	Cauvery, P. V. ..	At anchor 17 fathoms off tail of the Western Sea Reef; South Channel Buoy, NE¾E	On 28th. Fine; wind from SE. to ESE First part of this day fresh breezes ESE. to ENE. Latter E. to SE. with hard squalls and heavy rain, riding 160 fathoms.
	Seahorse, P. V ..	At anchor off Northern part of Point Palmiras 20 fathoms, dark sand	Strong breezes ENE. to East, and very squally. Vessel labouring much, riding with 120 fs. cable.
	Coleroon. P. V ..	At anchor Eastern Channel, Floating Light EbS½S. 1½ miles ..	First part moderate Easterly winds. From 8 A. M to midnight hard squalls from NE. to ESE. with rain and heavy sea.

N. B. The week preceding moderate. and fine weather Winds from SW to SE On 28th winds variable from ENE. to ESE and weather fine.

Date, Civil time.	Names of Vessels.	Situation.	Winds, Weather, and Remarks.
30th April 1840.	Megna, P. V. ...	At anchor Western Sea Reef.	Strong gale from the Eastward, heavy squalls. At daylight, heavy squalls and rain from ENE. and very stormy appearance; vessel labouring much. At Noon. Wind rose to a gale from the Eastward. Blowing in heavy gusts with rain. 10 P.M. Increasing, veered to 125 fathoms, then blowing a hard gale and very heavy sea running; vessel shipping much water. Midnight. The wind hauled round to East, still blowing hard.
	Cauvery, P. V.	At anchor as before, 17 fathoms...	First part moderate from ESE., latter fresh gales from SE. to SSE.
	Seahorse, P. V....	At anchor off Northern part of Point Palmiras, as yesterday.	Fresh gales ENE to EbS. with heavy rain; 160 fathoms cable. 4 P.M. gale increasing.
	Coleroon, P. V....	At anchor Eastern Channel Floating Light EbS½S. 1½ miles.	First part hard squalls from ESE. Noon; more moderate, latter. 8 P.M. hard squalls SE. to SSW. with lightning and rain. At 10 P.M. blowing a gale at SEbE. and to midnight the same.

Date, Civil time.	Names of Vessels.	Situation.	Winds, Weather, and Remarks.
1st May, 1840.	Megna, P. V. ..	At anchor Western Sea Reef. ..	Wind, first part, from ESE.; middle, SE.; latter, South. At daylight still blowing a hard gale from ESE. but with a clearer appearance. Noon, began to lull; wind SE. At 4 P.M. wind abating. At Sunset, hauled to South.
	Cauvery, P. V. ..	At anchor as before; drifted into 11½ fathoms on the Western Sea Reef.	A.M. Fresh gales from SSE. to SW. P.M. Moderating from SW. with a squall from WNW. and rain. At 8 A.M. driving on Western Sea Reef with 160 fathoms. Let go a second anchor. Noon, blowing a fresh gale from SWbS. shipped a heavy sea and carried away the tiller. 8-30 P.M. Moderate from SW. Midnight, wind moderate from SW. and cloudy.
	Seahorse, P. V. ..	At anchor off Northern part of Point Palmiras, as before.	Fresh gales ESE. to SSE. with heavy rain at intervals. At 1 A.M. driving. At daylight driving again; 200 fathoms cable. Noon, gale moderating; wind SSE. to SSW. Midnight, moderate.
	Coleroon, P. V. ..	At anchor as before.	Early part a gale from SEbE. Towards morning increasing gale from South, with a very heavy sea. At 10 A.M. gale veered round to SW. shipping heavy seas; riding with 150 fathoms. P.M. gale moderating. Midnight, moderate; SSW. to WSW.

Schooner "Margaret," Capt. Thaddeus; proceeding up the River.

28th April, 1840. *Civil time.*—Noon. Lat. 20° 45′ N. Long. 88° 32′ E. 55 fathoms, soft mud. P.M. Fresh breeze ENE. At 9, NE. cloudy, and lightning from SE. and East at midnight.

29th April.—Noon. Strong breeze and cloudy; working up. P.M. Small rain. P.M. ENE. and at 5, NE. Midnight; strong breeze NE. and threatening gloomy weather, with drizzling rain.

30th April. Wind ENE. At daylight threatening. Noon, passed Diamond Harbour, midnight hard squalls. At anchor off Wolloobурrya.

1st May. A.M. ENE. Wind fresh breeze and rainy, cloudy and threatening at daylight. At 8-30, wind SSE. strong breeze. Noon, heavy gales. 4-30. P.M. Wind South. Midnight, heavy gale with small rain. At anchor half way between Wolloobурrya and Calcutta.

2nd May. A. M. Wind South. Strong gale with small rain; arrived at Calcutta. P. M. SSW. Wind, with rain.

At Calcutta,

the following are my own observations. The Barometer is corrected to the standard at the Surveyor-General's Office.

29th April, 1840. *Civil time.*—At 8 A. M. Bar. 29·74. Squalls from the NE. During the day close sultry weather, calms and light squalls at times from NE. with drizzling rain. At 7 P. M. Close and sultry, drizzling rain and light airs from the NE. with cloudy, gloomy, weather all round. Bar. 29·67. During the night, gloomy weather, with light breezes, from the E. and NE.

30th April.—The same weather continuing. At noon squalls and drizzling rain from East and ENE. Bar. 29·64. Calms and heavy rain to 4½ P. M. Bar. 29·57. Evening and to midnight, light airs from the East, dark gloomy weather, and drizzling rain at times.

1st May.—From midnight to 6 A. M. dark gloomy weather, with light breezes and squalls at times from East and ESE. At 6 A. M. Bar. 29·52. A squall from the SE. with heavy rain: scud flying fast from the SE. 10½ A. M. Bar. 29·52. Strong breeze SE. with squalls. Noon. Bar. 29·47. A gale with heavy squalls SE. to ESE. with heavy rain, 3 P.M. Bar. 29·39. Gale in heavy squalls, from SSE. 4½ P.M. Wind S. (gale) with frequent squalls, Bar. 29·39.

5½ P. M. The same. Bar. 29·40. 6½ P. M. SbW. Heavy dark scud and squalls. Bar. 29·42. 7½ Sudden squalls and lulls between them, from SSW. and SW. Bar. 29·45. 9 P. M. The same; squalls hauling to SW. Bar. 29·52.

2nd May.—5 A. M. Bar. 29·58. Fine weather.

I have inserted the following report on the principle, that no knowledge should be, in the present state of the inquiry, set aside; but I do not think it has much relation to our present subject.

Report from the Collector of Coringa to the Government of India.

"As it may enable the gentleman who has undertaken to investigate the course of storms, to fix with some accuracy the extent to which the late gale of the 30th April and 1st May reached, I have the honor to forward an extract from the Log just received from the Coringa Lighthouse from 6 P.M. of the 1st ultimo, till midnight; when the wind died away. This squall appears to have been the tail of the storm, and did not, I should think, extend much farther along this coast. The weather for two or three days before had been very threatening, and I understand the Barometer fell to a considerable extent, but as the instrument for the Lighthouse has not yet been received from Madras, I regret that I am unable to furnish you with a more accurate report."

"G. SMITH."

Extract from the Log kept at the Lighthouse at Coringa.

Hours.	Winds.	Remarks on Friday, 1st May, 1840.
6 P.M.	SW.	Wind moderating, and a squall brewing in the NW.
7.	"	The squall, with thunder and lightning, commenced blowing from this quarter with a smart shower of rain.
8.	Westerly,	
9.	SW.	
10.	"	Blowing very fresh.
11.	"	
12.	"	Wind moderating, weather clearing up.

The Brig "Union," from Coringa to Pondicherry. Forwarded by Capt. Biden, Master Attendant, Madras.

On the 30*th April*, when she was at Noon in Lat. 14° 19′ N. Long. 82° 15′ E. had smart breezes from SW. amounting to strong gale, and high sea. At midnight, wind South, strong gales with dark gloomy weather, and a turbulent sea, laid to under bare poles.

1*st May*. At 3 A.M. wind SSW. Daylight, moderating; made sail, wind SWbS. and SSW. till noon, when fresh breeze and hazy weather. Lat. 14° 49′ N. Long. 81° 18′ E. P.M. moderating, but towards, and at, midnight increasing again to fresh gales SbW. to SSW. and high confused sea.

2*nd May*. Wind SW. to SE. at noon, when it moderated to light airs from that quarter. Lat. 14° 26′ N. Long. 80° 15′ E.

Extract from the Log of the Barque "Sarah," from Vizagapatam towards Madras. Reduced to Civil time. Forwarded by Captain Biden, Master Attendant, Madras.

30th April, 1840.—P.M. Fresh breezes SW. to 7 P.M., veering to SbE. at 7 and South at 8, with cloudy weather till midnight.

1st May.—At 2 A.M. hard gales SW. veering to NW. at 4, and again to SSW. At 7 heavy lightning, split several sails. At noon moderating, Lat. 13° 25′ N. Long. 82° 47′ E. Bar. 29.56. P.M. Wind SbE. fresh breezes and cloudy, till midnight.

Extracts from the Meteorological Journal kept at the Madras Observatory.

Date,	Barometer.			Thermometer.		
	8 A.M.	4 P.M.	10 P.M.	8 A.M.	4 P.M.	10 P.M.
1840. April 26th.	29.776	....	29.766	86·0	....	87.3
27th.	29.720	29.614	29.706	86.3	91.0	89.7
28th.	29.700	29.628	29.720	86.4	90.0	88.4
29th.	29.680	29.605	29.684	87.2	91.3	89.2
30th.	29.680	29.568	29.680	87.9	99.0	89.8
May 1st.	29.720	29.643	29.798	88.3	93.0	86.5
2nd	29.820	29.750	29.858	86.0	89.0	87.8

The following table is extracted from a Meteorological Register kept at Chuprah, by Mr. Ravenshaw of the Civil Service.

April	24	29·64	87½	29·57	88½		East variable { 4 P.M. NbW.
	25	29·54	88	29·36	88¾		Variable. { Do. Do, Gale from E. at 6½ P.M.
	26	29·48	86	29·46	87½		Strong Gale from E. all night, to present hour 10 A.M. accompanied with clouds, but no rain. At 4½ still blowing from E., but more moderate. At 10½ P.M. still blowing; fresh Gale all night.
	27	29·52	86	29·48	87½		Ditto. 4½ P.M. E. fresh more moderate.
	28	29·56	87½				Gale continues.
	29	29·62	87½	29·56	88		Strong wind but variable ENE. cloudy, at 4½ E. moderate.
	30	29·56	88	29·52	88¾		East moderate Do. fresh.
May	1	29·53	86	29·53	86	N. B. (SE. Gale at Calcutta,)	N.E. blowing fresh cloudy. 4½ P.M. squall at NbE. rain
	2	29·53	83	29·50	84		Variable, rain all night. Do. Cloudy, sky overcast.

Memoranda from Dadoopoor, Kurnaul, and Hansie, of a storm which occurred at those places on the evening of the 4th May, 1840; *forwarded by Lieut. Baker. Dadoopoor. Report of Mr. W. Dawe, Delhi Canal Department.*

On the 4th (the day of the storm), the wind had been blowing strong from the Eastward all day, but about 7 P.M. heavy clouds appeared in the SW. to West quarters, with thunder and lightning. The storm came on at 7 hours, 45 minutes, from the southward of West. But by 8 P.M. it had settled at North-west, and continued to blow steadily till about 9 P.M. with a few drops of rain. From this period till 10 P.M. the thunder was heavy and continued, and the lightning vivid. But the wind came in sudden and heavy gusts, which has done much damage to the trees, &c. As the crops had been cut, by the appearances after the storm had subsided it might have been concluded that it was only one of usual occurrence; but as good sized trees have been broken short off, this proves that it was otherwise.

By reports from the Deyrah Dhoon, and Saharunpoor district, it appears the storm has been as severe at those places also.

DADOOPOOR, 14*th May*, 1840.

WILLIAM DAWE, *Conductor.*

Copy of the Meteorological Register kept at Dadoopoor, for the first week of the month of May, 1840.

		Observations day-break.				Ditto at 10 A.M					Ditto at 4 P.M.				Ditto at 10 P.M.					
			Thermometer.					Thermometer.				Thermometer.					Thermometer.			
	Dates.	Barometer.	Attached.	Detached.	Wet bulb.	Rain Gauge.	Barometer.	Attached.	Detached.	Wet bulb.	Barometer.	Attached	Detached.	Wet bulb.	Rain Gauge.	Barometer	Attached.	Detached	Wet bulb.	Remarks.
May, 1840.	1	28·526	68 ,,	67 ,,	65 ,,	,, ,,	28·725	95 ,,	94 ,,	81 ,,	28·620	103 ,,	102 ,,	86 50	,, ,,	28 602	79 ,,	78 ,,	74 ,,	Clear, light, variable wind.
	2	28·540	70 ,,	69 ,,	66 50	,, ,,	28·636	96 ,,	95 ,,	80 ,,	28·590	103 ,,	100 50	83 50	,, ,,	28·622	80 ,,	78 ,,	72 ,,	Clear. light, variable wind.
	3	28 660	80 ,,	79 ,,	73 ,,	,, ,,	28·766	92 ,,	91 ,,	80 ,,	28·766	100 ,,	99 ,,	80 ,,	,, ,,	28·652	83 ,,	82 ,,	79 ,,	Clear strong easterly wind.
	4	28·540	77 ,,	76 ,,	74 ,,	,, ,,	28·702	92 ,,	91 ,,	83 ,,	28·544	100 50	100 ,,	87 ,,	,, ,,	28 624	74 ,,	72 ,,	70 ,,	A. M. Clear strong easterly wind. P. M. a storm from W. to N.W. with rain.
	5	28·576	73 ,,	72 ,,	67 ,,	,, 50	28·694	88 ,,	87 ,,	78 ,,	28 614	91 ,,	90 ,,	80 ,,	0 03	28 662	75 ,,	74 ,,	69 ,,	A. M. Clear, light, easterly wind. P. M. Squall, easterly shower.
	6	28·712	69 ,,	68 ,,	66 ,,	,, ,,	28·828	83 ,,	83 ,,	74 ,,	28 786	92 50	92 ,,	78 ,,	,, ,,	28·790	78 ,,	77 ,,	70 ,,	Clear, light. easterly wind.
	7	28·742	68 ,,	67 ,,	66 ,,	,, ,,	28·828	86 ,,	85 ,,	75 ,,	28·736	95 ,,	94 ,,	75 ,,	,, ,,	28·742	79 ,,	78 ,,	73 ,,	Clear, strong, easterly wind.

Kurnaul. Lieut. Baker's Report.

We had westerly winds at Kurnaul on the 1st and 2nd instant; and on 3rd and 4th, a strong breeze from the Eastward, and 3 or 4 P.M. on the 4th, a heavy bank of clouds appeared to the westward. About sunset we had frightful gusts of wind from the West, North and North-east, the air during the intervals being sultry and oppressive.

About 8¾ P.M. the sky became entirely overcast, and a violent squall of wind began to blow from the Westward, accompanied by clouds of dust, and latterly a few drops of rain. The wind continued to blow from the West with more or less violence for about two hours, when it gradually went round to the East, from which quarter it continued to blow till 2 P.M. on the 5th, when it was interrupted by a second (less violent) squall, from the Westward, accompanied by a slight shower of rain.

The strength of the wind during the first squall must have been considerable, as it unroofed many out-offices at the station, and blew down many hundred trees on the Canal banks.

Hansie. Report of Mr. T. Johnson, Delhi Canal Department.

I have the honor to report, agreeable to the Government Notification dated 11th September, 1839, that this station was visited by a storm of wind and dust on the evening of the 4th May, 1840.

The storm commenced at ½ past 8 o'clock P.M. from the NW. the wind blowing in strong gusts, bringing with it dense masses of dust; its duration was for ¾ of an hour, when the wind veered round to the NE. and continued to blow a stiff breeze from that point nearly all night, unaccompanied by dust. There were masses of clouds with much lightning passing along the northern horizon, but none of the clouds came over this neighbourhood, nor did I hear any thunder. I am inclined to think that the storm did not extend much further than this to the South or South-east, for what came here was lateral, and apparently from some heavy storm at a great distance from this.

The thermometer during the day had been up to 106° and at the commencement 90°, At the subsiding of the storm it was down to 76°.

The following logs have also reached me; and that no knowledge of the weather prevailing about the Bay at the time of the storm, should be lost, I have printed them. I shall remark upon them after summing up the evidence we have for the track of the storm.

Extract from the log of the Packet Columbia; from Calcutta towards Singapore. Civil time.

On the 24th April.—At noon in Lat. 5° 10′ N. Long. 99° 53′ East; light breezes and fine weather. At 10 P.M. very threatening to the Southward. At midnight a tremendous heavy squall, with much rain, thunder and lightning, and the wind veered suddenly to the SWestward.

25th April.—At 5 A.M. hard squalls, winds variable from SW. to SE. Daylight, strong breezes with a heavy head sea. Noon, strong breezes with a very heavy sea. Lat. 4° 49′ N. Long. 99° 42′ E. P.M. Moderating about midnight; wind SE. throughout.

26th April.—At 10 A.M. increasing again from SSE. to SE. Noon, Lat. 4° 53′ N. Long. 100° 1′ E. off Pulo Penang. Wind SSE., breeze increasing from SE. till midnight.

27th April.—A.M. A gale at SE. with a tremendous sea, frequently heaving the vessel on her beam ends. At Noon. Lat. 4°46′ N. Long. 99°50′ E. Towards midnight moderating from SSE. but increasing so much the next day, as to oblige the vessel to go into Penang harbour.

Extract from the Log of the Brig Pyeen Boun, from Moulmein to Madras; from Capt. Biden, Master Attendant, Madras; supposed by Nautical time.

April 29th, 1840.—Lat. 15° 52′ N. Long. 97° 5′ E. Hard squalls with occasional showers of rain, and a high sea running this day; wind at SSW.

April 30th.—Increasing heavy squalls from SSW. with lulls at intervals; a heavy sea running throughout the 24 hours; sent down topgallant masts and yards.

May 1st.—Hard gales from SW. with thunder, lightning, and rain, and a heavy confused sea running, breaking occasionally over the vessel. Under closed-reefed topsails.

May 2nd.—Increasing gales from SW., with heavy dark appearance, thunder and lightning, and a very high sea running. Split both topsails, unbent them; bent, and close-reefed two others.

May 3d.—Lat. 14° 32′ N. Long. 96° 30′ E.

H. C. S. Amherst. Gale of 27th April to 1st May, 1840.

The H. C. S. "Amherst" was lying at Kyook Phoo, and experienced, as by her log, nothing but squally and rainy weather at times from the 28*th April* to 1*st May.* The winds were moderate, and variable from ESE. to SE. South and SSW.

From the "Colombo Observer."

On Saturday night, 25*th April* 1840, a strong breeze of wind commenced, amounting almost to a gale—apparently the beginning of the Monsoon—accompanied, as usual, with a heavy sea and a high surf over the Bar, which has since continued. In this state of the weather a wharf jolly-boat, returning from the Persia, when crossing the Bar, was swamped, and, melancholy to relate, three persons were drowned.

The ship Recovery, Captain Johnstone, was at noon of the 28*th April* in Lat. 5° 43′ N., steering to the NNE. to round Ceylon. At noon of the 29*th*, she was in 7° 20′ N. with Westminster Abbey bearing SWbW. At noon on the 30*th* having stood north 126, miles she was in Lat. 9° 40′ N. and at noon on the 1*st May* in 11° 57′ N. having stood north 149 miles, and had fine weather throughout these days.

Barque "Cornwallis," from Bombay towards Calcutta. Civil time.

At noon on 28*th April* in Lat. 11° 50′ N., Long. Chron. 74° 48′ E. Fine weather till midnight.

29*th April.*—Midnight, strong 6 knot breeze NW. Hazy strong SSE. Daylight and to Noon heavy westerly swell. Noon Lat. 9° 14′ N. Long 75° 50′ E. increasing to sunset and midnight. Wind NW. throughout. A.M. 30*th April,* strong breezes SW. to Noon, heavy westerly swell. Noon Lat. 7° 3′ N. 78° 15′ E.; P.M. and to midnight, very heavy swell from West; wind westerly; thick hazy weather.

1*st May,*—Light 5 knot breezes at daylight, and fine weather; vessel labouring so much with the heavy westerly swell, that it is feared she may roll away her masts. Hove to to set up the rigging at Noon. Wind westerly throughout Lat. 5° 47′ N. Long. 80° 20′ E. High swell continuing till midnight, when it abated and is not mentioned on the 2*nd.*

I have next, as in the former Memoir, arranged the winds and weather experienced at Noon, Civil time, by each of the different vessels, and at the stations within the Bay of Bengal, in a tabular form; so as to afford a ready reference from the chart and diagrams, and to shew more strikingly than by detailed accounts, the remarkable contrasts which different points of the space comprised in the charts, exhibit.

Tabular View of the Hurricane in the Bay of Bengal, and at Cuttack, of 27th April to 2nd May, 1840.

Date, Civil time.	Names of Vessels and Places.	Winds and Weather.	Lat. N.	Lon.E.	Bar.	Simp.	Ther.	Remarks.
			° ′	° ′				
Noon. 27th April, 1840.	Nusserath Shaw,	ENE. strong breezes; dark cloudy, ...	16 2	91 21	...	...	...	Increasing sea.
	Tenasserim, ...	Easterly fresh breeze, ...	17 40	90 50	...	...	...	
	Freak, ...	Wind light; hauling to the East, ...	18 56	88 30	...	...	...	
	Flowers of Ugie,	SE. fine clear weather, ...	19 52	89 24	...	...	...	Steering to the S. Westward.
	Christopher Rawson.	SSE. light and sultry, ...	17 15	...	29.80	...	...	Heavy swell from the SW.
	Elephanta, ...	SW. to SSW. moderate and fair, ...	13 52	83 50	29.60			
	At Madras, ...	... ...	...	...	29.67	...	88	A.M. Blowing in hard gales from Westward with rain.
	Amelia Thompson,	West, moderate and fine, ...	4 14	88 18	...	...	...	
	Ganges, ...	SSW. to SW. hard gale, ...	7 10	95 18	29.60	...	...	On 26*th*, in Lat 6° 37′ N. Long. 95°56′ E. fresh gale at SSW. veering to the SW. On 27*th*, hove to under storm staysails. Bar. 29·50

Date, Civil time.	Names of Vessels and Places*	Winds and Weather.	Lat. N.	Lon. E.	Bar.	Simp.	Ther.	Remarks.
			° ′	° ′				
Noon. 28th April, 1840.	Nusserath Shaw,	ENE. a hurricane.	14 26	91 34	...	...	...	At 10 A.M. Lost mizen mast, blowing a hurricane. 3 P.M. wind shifted to South-westward.
	Vectis, ...	East fresh breezes and cloudy, ...	18 37	87 55				
	George and Mary,	Veering from SW. to East fine breeze, ...	...	...	...	...	...	At 6 P.M. Heavy bank to the SW.
	Tenasserim, ...	South-eastward, heavy gale,	...	...	...	...	...	Sea making a continued breach over the vessel, gale increasing.
	Freak, ...	Hauling to NNE. strong breeze and threatening,	17 40	88 32	...	...	...	At 6 P.M. Gale increasing rapidly from NNE.
	Flowers of Ugie,	ESE. smart breeze and clear,	19 19	88 22	29·17	...	...	Increasing breeze veering to East at 7 P.M. with very bad appearance to the SE.; standing to the SW.
	Christopher Rawson, ...	East to ESE. heavy appearance, ...	17 29	...	29·40	...	...	Running in for a pilot.
	Elephanta, ...	EbS. light winds and cloudy, ...	15 20	84 20	...	...	...	Heavy swell from SW.
	At Madras, ...		...	...	29·66	...	89	
	Cornwallis, ...	Fine weather, westerly breeze, ...	11 50	74 48	...			
	Amelia Thompson,	WSW. moderate, ...	4 25	87 48	...			
	Clarissa, ...	West to WSW. squalls and rain, ...	7 11	87 56	...	...	...	Blowing hard and high sea, but not a gale.
	Ganges, ...	Clearing up, ...	8 7	94 33	29·80	...	...	Wind not specified.

Date, Civil time.	Names of Vessels and Places.	Winds and Weather.	Lat. N.	Lon. E.	Bar.	Simp.	Ther.	Remarks.
			° ′	° ′				
Noon. 29th April, 1840.	Nusserath Shaw.	SbW. squally and rain, ...	15 23	90 31	...	...	...	Fresh gales and heavy weather, with dreadful gusts of wind and squalls, sea breaking over the ship, 3 ft. water in the hold.
	Vectis, ...	*Variable!* full hurricane,	16 58	88 4	...	...	...	Full hurricane with a heavy sea, vessel on her beam ends with decks cleared, loss of top masts &c.
	George and Mary,	NNW. a mere hurricane, ...	16 0	84 30	...	...	...	Hurricane, lasting for about six hours from NNW. then veering East and ESE.
	Tenasserim, ...	SE. gale, blowing hard, ...	16 32	91 2	...	...	...	Rather clear, but still blowing hard.
	Pyeen Boun, ...	SSW. hard squalls, ...	15 52	97 5	...	...	...	Showers of rain. High sea running.
	Freak, ...	SW. blowing furiously, ...	16 2	88.36	...	...	...	Hurricane since midnight.
	Flowers of Ugie, ...	NE. at 10, and north at 11, and NW. at 1 P.M. heavy gales, ...	17 15	86 43	28·36*	...	...	Hove to under bare poles; heavy sea and very bad weather.
	La Belle Alliance,	NE? increasing gale and hard squalls, ...	...	...	...	...	...	Thick hazy weather, P.M. gale increasing fast, off Point Palmiras.
	Chirstopher Rawson, ...	East to ESE. in squalls, heavy gale, ...	...	...	...	...	...	SSW. 30 from floating light. Gale increasing fast, confused sea.
	Hope, L. Vessel,	Easterly strong breezes and cloudy, ...	21 26	88 07	29 65	...	81	At the inner station; 140 fathoms of cable out.
	Beacon, L. Vessel,	East, veering to NE. heavy squalls, ...	21 04	88 27	...	...	...	Threatening appearance; moderating at midnight.

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* Probably by mistake see remarks—H.P.

Date, Civil Time.	Names of Vessels and Places.	Winds and Weather.	Lat. N.	Lon. E.	Bar.	Simp.	Ther.	Remarks.
			° ′	° ′				
Noon. 29th April, 1840. *Continued.*	Megna, P. V. ...	East and ENE. blowing hard, ...	...	...	...	...	...	At anchor Western Sea Reef; 18 fathoms, 90 fathoms cable out.
	Cauvery, P. V. ...	East to ENE. and ESE. hard squalls, ...	...	...	...	...	...	At anchor, tail of Western Sea Reef; 160 fathoms cable out.
	Coleroon, P. V. ...	NE. to ESE. hard squalls,	...	...	...	...	...	At anchor near Floating Light.
	Amelia, ...	ENE. blowing very hard,	...	...	...	...	...	Sea rising, increasing to a gale. Standing to sea with a pilot on board.
	Elephanta, ...	NE. fresh breeze and cloudy weather, ...	16 20	84 22	..	...	...	Heavy swell from the Eastward, and current to the Westward of 20 24.
	At CALCUTTA, ...	NE. calms and light airs, ...	22 34	88 22	...	...	...	Close sultry weather and drizzling rain.
	Margaret, ...	ENE. strong breeze and rain, ...	...	...	...	...	...	Between Kedgeree and Diamond Harbour.
	At Balasore, ...	NE. rain and squally, ...	21 28	87 10	29.66	...	85	
	At Pooree or Juggurnath, ...	NbE. strong wind, ...	19 48	85 45	...	...	...	Increasing breeze to midnight.
	At Madras, ...		...	...	29.61	...	89	
	Cornwallis, ...	NW. increasing breeze, ...	9 14	75 50				
	Clarissa, ...	Moderate on this day, ...						

Date, Civil time.	Names of Vessels and Places.	Winds and weather.	Lat. N.	Lon.E.	Bar.	Simp.	Ther.	Remarks.
			° ′	° ′				
Noon. 30th April, 1840.	Nusserath Shaw,	SE. fresh gales, ...	...	...	...	...	...	Bore up for Calcutta; heavy cross sea.
	Vectis, ...	SbW. gale continuing, ...	17 40	88 10	...	...	...	Very high sea.
	Tenasserim, ...	SSE? moderate,..	16 21	91 50	...	...	...	Becoming fine.
	Union,...	SW. strorg gales and high sea, ...	14 19	82 15	...	...	...	Veering to South by midnight, and SSW. by 3 AM. 1st May. Laid to under bare poles.
	Pyeen Boun, ...	SSW. Increasing, heavy squalls, ...	...	...	...	...	...	Heavy squalls with lulls at intervals, and heavy sea; preparing for bad weather.
	Freak,...	SW. a little moderating, ..	16 41	88 0	...	...	...	
	Flowers of Ugie.	South; very heavy gales and bad weather, ...	17 48	86 53	29.11*	...	...	
	La Belle Alliance.	SSW. a violent gale with awful gusts, ...	...	...	28.60	...	...	At 11 AM. shift of wind from NEastward to SSW. Heavy sea.
	Christopher Rawson.	SSE. heavy gale, ...	20 28	...	28.90	...	...	Under bare poles in the trough of the sea.
	Hope, L. Vessel.	Strong ESE. breezes and threatening, ...	21 26	88 07	29.60	...	82	140 fathoms of cable out.
	Beacon, L. Vessel.	ESE. to East, heavy squalls and threatening weather,	21 14	88 27	...	...	...	
	Megna, P. V. ...	N. to ENE. blowing a gale,	...	...	...	...	...	At anchor Western Sea Reef 125 fathoms cable. Heavy sea.
	Cauvery, P. V. ...	Fresh gales ESE.	...	...	...	...	...	Ditto Ditto.

* Corrected.

Date, Civil time.	Names of Vessels and Places.	Winds and Weather.	Lat. N.	Lon. E.	Bar.	Simp.	Ther.	Remarks.
			° ′	° ′				
Noon. 30th April, 1840. *Continued.*	Coleroon, P. V. ...	ESEasterly, veering to SEbE. moderating,... ...	...	...	...	...	...	At anchor near Floating Light P.M. Gale at SEbE.
	Amelia, ...	At EbN. blowing a hard gale, ...	...	...	...	...	...	Heavy sea, wind veering to East at 6 P.M. and SE. at midnight.
	Elephanta, ...	SW. fresh breeze and cloudy,	17 46	84 28	...	...	...	A great swell from the NE. Ship labouring much.
	At CALCUTTA,......	Light East to ESE. squalls and drizzling rain. ...	22 34	88 22	29·64	...	...	To midnight, light airs and gloomy, drizzling weather.
	Margaret, ...	ENE. threatening, ...	...	...	...	...	...	Passing Diamond Harbour.
	At Balasore, ...	NE. rain and puffy, ...	21 28	87 10	29·57	...	82	
	At Pooree or Juggurnath, ...	NE. heavy gale, ...	19 48	85 45	...	...	...	Incessant rain. Shift of wind at 8 P.M.
	At Madras, ...		...	...	29·66	...	89	
	Cornwallis, ...	NW. Strong breeze; thick hazy weather, ...	7 3	78 15	...	...	...	P.M. Very heavy swell from the Westward.
	Moira, ...	SW. smart breeze increasing	14 19	82 15	...	...	...	P.M. Increasing to strong gales at South, by midnight.
	Sarah, ...	SW. fresh breezes, ...						

Date, Civil time.	Names of Vessels and Places.	Winds and Weather.	Lat.N.	Lon.E.	Bar.	Simp.	Ther.	Remarks.
			° ′	° ′				
Noon. 1st May, 1840.	Vectis, ...	SSW. fresh gales and squally...	18 43	88 18	...	...	...	Bore up for Calcutta.
	Union, ...	SSW. and SWbS. fresh breezes hazy, ...	14 19	81 18	...	...	...	Increasing again to fresh gales SbW. and SSW. at midnight.
	Pyeen Boun, ...	SW. hard gales, thunder, lightning, and rain, ...	...	...	...	...	...	Confused sea; under close-reefed topsails.
	Freak, ...	Moderate breeze,...	17 26	87 47	...	...	...	
	Flowers of Ugie,	South, moderate and fine,...	18 23	86 58	...	...	...	
	La Belle Alliance,	Moderating from the Southward,...	...	...	29·30	...	...	Moderating from 5 A.M.
	Christopher Rawson,...	SSW. clearing a little, ...	...	...	...	...	...	In 16 fathoms; off Point Palmiras; ship lying helpless. P.M. Moderating.
	Hope, L. Vessel,	Moderating and veering to the Southward, ...	21 26	88 07	29·53	...	83	200 fathoms cable out. Heavy sea on.
	Beacon, L. Vessel,	SSE. heavy gale and sea,...	21 04	88 27	...	...	...	P.M. Clearing up a little, veering to SSW. at midnight.
	Megna, P.V. ...	SE. beginning to lull, ...	...	...	...	...	...	At anchor; Western Sea Reef. Sunset; wind south.
	Cauvery, ...	SWbS. fresh gale, ...	...	...	...	...	...	Driving on the Western Sea Reef with 160 fs. of cable out; at 8-30, moderate.
	Coleroon, ...	SW. gale, ...	...	...	...	...	...	At anchor as before. At 10 A.M. gale veered to SW.

Date, Civil time.	Names of Vessels and Places.	Winds and Weather.	Lat. N.	Lon. E.	Bar.	Simp.	Ther.	Remarks.
			° ′	° ′				
Noon. 1st May, 1840. *Continued.*	Amelia, ...	SW. gale abating, ...	...	...	...	...	...	15 miles to the south of Point Palmiras in 22 fs. Bore up.
	Elephanta, ...	SSW. moderate and hazy,	18 48	85 40	...	...	...	
	At CALCUTTA, ...	SE. to ESE. Gale with squalls.	22 34	88 22	29.47	...	...	Gale began at 6 A.M. and ended at about 9 P.M. to midnight.
	Margaret, ...	SSE. heavy gale, ...	...	...	...	...	...	At anchor Wolloburrya 12 miles below Calcutta.
	At Balasore, ...	South strong gusts, ...	21 28	87 10	29.43	...	81	Wind veering from NE. to South at 8 A. M.
	At Pooree or Juggurnath, ...	SW. gusts at times, ...	19 48	85 45	...	...	...	Gale abating from 4 A. M.
	At Coringa, L. H.							A heavy squall from SW. for three or four hours at 7 P. M.
	At Madras, ...		...	...	29.70	...	90	
	Cornwallis, ...	Westerly breeze and fine, ...	5 47	80 20	...	...	...	Fine weather, but tremendous swell, continuing till midnight.
	Union, ...	SSW. fresh breeze and hazy,	14 49	81 18	...	...	...	
	Sarah, ...	SbE. moderating, ...	13 25	82 47	29.56	...	...	A Gale veering from SW. to NW. and SSW. the preceding 12 hours.

We have now to show what is the evidence we possess for—

I. The formation of the vortex, and evidence for its form.

II. Its size

III. Its rate of progression.

I. *The formation of the vortex and evidence for its form.* Our evidence for the actual circle laid down on the 27*th* is, as will be subsequently seen in speaking of the centres, very imperfect; as is also that of the 28*th*, where all we know is, that it *was* a veering hurricane with the *Nusserath Shaw*, and could not be said to reach the *Freak* till the evening. Hence I have taken it to be a vortex of about 300 miles in diameter, and that the *Tenasserim's* SE. gale was a little without the circle, though really arising from the same disturbance. The diagrams, and the subsequent remarks upon the evidence by which I have placed the different centres, will render unnecessary any further detail upon this head.

In estimating the centres for the different days, I have been guided as follows,—

On the 27*th*, we have the logs of the *Nusserath Shaw* and *Tenasserim* available, and of these, the *Nusserath Shaw*—near to which vessel the centre passed on the following day at 3 P.M. when she had the shift of wind,—must of course have been the nearest to it. She had the wind steady from ENE. during the whole of the 24 hours (from noon 27*th* to noon 28*th*) an evidence that she was on the direct line of the track of the storm. She also made good, from noon to noon, a course of 100 miles S. 7° E.; while the track of the storm (by projection from the shift which she experienced, from ENE. to SW.) must have been about N. 34° W. and S. 34° E. so that we may say, without much exaggeration, that the ship travelled 100 miles, and the hurricane 180 miles almost directly towards each other! A very remarkable instance of the truth and value of the Theory of Storms, if rightly understood; for it is clear that this, which happened to a single ship, might have happened to a whole fleet! Heaving to for six hours, would have saved the owners and underwriters the heavy loss which the dismasting and return of this vessel to Calcutta entailed; and a good Barometer and Simpiesometer on board, would infallibly have indicated the coming danger in time.

The *Tenasserim* seems but just to have felt the first puffs of the storm on this day.

It will be remarked in the table for this day, that the *Ganges* in Lat. 7° 10′ N. Long. 95° 18′ E. was hove to from the day preceding, in a heavy gale blowing "from SSW. to SW." The chart does not admit my including her position, but if projected, it will be found that if the circle of the storm was completed, she was about on the opposite side of it from the *Nusserath Shaw;* and I have thus, with reference to the rate of travelling of the centre of the storm, between the 28*th* and 29*th*, assumed that it may have been about half way between them, or 290 miles from each. This would give it a circle of 580 miles on the first day, and we have no better authorities. The brief extract from the log of the *Clarissa* which vessel it will be seen, could not be far from the same latitude* on the 27*th;* being on the 28*th* in 7° 1′ N. but seven degrees further west; (her Long. being 87° 56′ E.) gives us "blowing hard from West to WSW.," so that there was probably, as in the gale of June, 1839, a Westerly and Southwesterly gale blowing across the mouth of the Bay, while the vortex was forming and travelling over from the Andamans to Cuttack. "The fine weather and SE. breezes" of the *Flowers of Ugie* and *Christopher Rawson* are exactly what should occur on the northern arm of a parabola formed by the deflection of a heavy SWesterly monsoon, setting in from the Bay against the high land of the Malay Peninsula.

For the 28*th April.* If we take the storm to have now travelled at the rate of 7 miles an hour, its centre at noon may have been about 15 to 25 miles SSE. from the *Nusserath Shaw;* since this ship had, at 3 P.M. the shift of wind from ENE. to SW. as shown by her log; so that the centre must have passed near her, to the Southward, or even over her. The *Tenasserim* at 180 miles distance, had the wind at SE. "a heavy gale" though if this was the hurricane, she should by her position, which is nearly due north of the *Nusserath Shaw's,* have had the wind at East. As there can be no doubt about the *Nusserath Shaw* having had the centre close to her at noon, *and that her position was not far wrong, I have taken the* point marked, 20 miles to the SE. of her, for its place at noon. The *Tenasserim* had probably her part of the storm somewhat deflected by the opening between the Andamans and Cape Negrais? or was not properly within the vortex, but in the northern arm of the parabola of the monsoon. The *Freak* and *Vectis* can scarcely be said to have felt the storm at noon on this day; the *Freak* at least not till 6 P.M., when it was a rapidly increasing gale at NNE., so that its circle may have been about 300 miles in diameter at this time.

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* Being bound from Penang to Madras, she had to make a westerly course across the Bay.

On the *29th April*, we find that the *Freak*—which vessel had had the gale rapidly increasing from NNE. at 6 P.M. on the 28th,—had it veering to NW. at midnight between the *28th* and *29th*, and to SW. by 6 A.M. or daylight; making on the whole 14 points of veering in 12 hours. At noon she had it also SW. Projecting this, it shows that the centre may have passed some 30 or 40 miles to the North-eastward of her position at midnight, which is very carefully laid down by Capt. Smoult; and that it was travelling in a N. Westerly direction. The *Flowers of Ugie* also, with a very careful log and corrected Barometer, had, we find, the storm increasing, from "squally with rain" at 4 A.M. to heaving to under bare poles at 11; the wind from East at midnight, to NE. at 10; North at 11; NW. at 1 P.M.; West at 3; SW. at 5; and South at 8 P.M. With her Barometer at 28·36, and the wind veering 16 points in the seven hours! between 10 A.M., and 5 P.M. or 2¼ points per hour; she cannot have been more than 15, or 20 miles at the utmost, from the centre. I should estimate it to have passed also to the NE. of her position. By projection I find 12 miles may have been her distance from the centre.

The log of the *Vectis*, though the centre cannot have passed far from her, is by no means so carefully kept as those of the *Freak* and *Flowers of Ugie;* so that, though I have placed her as I found it written, I am inclined to think that she may have been nearer to the *Flowers of Ugie* than she is placed on the chart.

That of the *George and Mary* presents also some anomalies, and the very remarkable one, that the wind seems to have veered as if the storm had passed close to the Southward of her. This could not have been, at all events, the same vortex. Did any division take place of the main vortex into two? which might account for this? and for the anomalies in the log of the *Vectis?* I should be unwilling, however, to suppose this, upon the very imperfect statement which has reached me, and this written by the clerk of a commercial house, who was probably not a seaman.

I have then taken the ***Freak's*** and ***Flowers of Ugie's*** positions, to determine the place of the centre this day, particularly the last vessel's, as there can be, but little doubt of her position, as she was going free till the time she hove to; and the logs of both vessels are excellent. The ***Tenasserim*** and *Nusserath Shaw* are apparently out of the actual circle of the storm on this day. They were perhaps beginning to feel the monsoon, which as I shall subsequently show was making its way rapidly up the Bay.

For the centre of the *30th April.* We find that according to Mr. Ewart's very graphic letter, the shift of wind took place at Pooree (Juggurnath) between 7½ P.M. and 9½ P.M., so that we may take the centre to have passed that station at 8½ P.M. of the 30*th*. From noon of the 29*th* to 8½ P.M. of the 30*th* is 32½ hours, and the distance from the centre of the hurricane on the 29*th* to Pooree, is about 165 miles. Throwing away fractions, this is about 5.1. per hour, and assuming the storm to have travelled in a straight line, we find upon measuring back for these 8½ hours, that the centre at Noon falls about 40 to 45 miles to the SW. of Pooree. This also agrees with the log of *La Belle Alliance*, which vessel had the shift of wind—and she probably passed through, or close to the centre,—at 11 A.M. This position of the centre would give the wind at the station of Pooree NEbE. Mr. Ewart's letter says NE., but a discrepancy of a point might occur even to a seaman; where compasses, weather-cocks, and vanes were not, we suppose, abundant; and where the tempest was also a sand-storm. To the North, we find the ***Christopher Rawson*** with the wind marked at SE. at daylight, and SSE. in the afternoon, but we have no statement of the wind exactly at noon, and in the state she is described, her observation of latitude must have been but a very indifferent one. Her place in the circle would give the wind to have been about SEbS., so that there is with her, also, a difference of a point, or a point and a half, only. The logs of the ***Flowers of Ugie*** with a gale at South, and ***Veotis***, a gale at SbW. differ widely from what they should have been had the circles of the vortex extended so far as their positions. I have marked them on the diagrams, and now proceed to consider the probable cause of this discrepancy, and of that which we observe in the logs of the Pilot and Light

Vessels. I have adverted, in both my preceding Memoirs, to the probable effects produced by the interruption which a vortex may experience when approaching the land.

In this instance, as before, we must consider the storm as a fluid vortex, moving onwards and striking the extremity of the Coromandel range, with two openings, that of the valley of the Mahanuddee, and of the low country above the Balasore hills, through which to force its way, (see the second Chart to my first Memoir). It is difficult to suppose, and with the imperfect maps we possess, impossible to calculate, what the effect of this double interruption would be; but we may, I think, fairly attribute to it the diminished rate at which the storm appears to have travelled; its remarkable change of course during this last 24 hours; the "awful gusts" of wind described in the log of *La Belle Alliance*, and the discrepancies of some of the logs as to the direction of the wind.* We find, what is very remarkable, the *Elephanta* coming up along shore with the usual monsoon wind of the season, and "fresh breeze and cloudy weather," though, as will be seen by the diagram, she is not far from the circles of the *Christopher Rawson*, *Vectis*, *Beacon*, and *Freak*, all of them still in very bad weather. There can be no doubt about the *Elephanta's* position, since she had the land in sight. The "great swell from the NE." which I have marked in italics, is, clearly that of the tempest, which at this time was just approaching the unfortunate station of Pooree. The *Elephanta's* distance from the centre of this day is considerable, being 163 miles, which would require the vortex to have been 326 miles in diameter, to have reached her.

Taking the nearest range of elevated land to be 30 miles inland from Pooree, we may suppose that circle of the storm upon which the *Flowers of Ugie* is placed in the diagram, to have been just impinging against it at noon, and hence perhaps the sort of *flattening* of it into an irregular oval, which gives the wind on the NE. and SE. portion,—*Flowers of Ugie*, *Vectis*, and *Christopher Rawson*,—a more southerly direction; and farther to the NE. creates the irregularity of the Pilot and Light Vessel's having the wind so far to the Eastward as EbS. to ESE.; while at Balasore it is NE. and puffy. We may on all these grounds I think, assume that the vortex had become wholly irregular, except near the centre. We should remark, however, that throughout there is no *contradiction* as to the general rule for the direction in which the wind moves; for all the evidence goes to show that in the open ocean it would have been a circular storm, blowing from right to left.

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* Captain Smoult of the "Freak" in a letter subsequently sent, says "at day-light on the 30*th*, the wind had hauled round (in the space of four hours) from NNW. to ESE. then back to Southward and SW. from which quarter it blew generally, till I arrived at Point Palmiras."

For the centre of the 1*st May*, we have to consider that the monsoon wind was making its way up along the coast; but we find that at Pooree, though abating from 4 A.M., there were still gusts at times from the SW. *La Belle Alliance* was on the verge of the southern part of the storm; but the *Christopher Rawson*, close off Point Palmiras, though the weather is clearing a little, is described as lying helpless. From this vessel's position, the report from Balasore, the wind at Calcutta, and with the Pilot and Light-vessels' logs* I have judged the centre to be about where I have marked it, but we must not forget, that to extend the circle to Calcutta, will make it one of 300 miles in diameter; and that from this point, nearly half way to Calcutta, that part of the vortex nearest the earth had, since before noon of the 30*th*, met with all sorts of obstructions; since it was travelling onwards amongst the numerous ranges of hills which bound the vallies of the Mahanuddee, the Braminy, the Byturnee, and the Subunreeka rivers, to the north of Cuttack as far as Midnapore. From this cause, we cannot on this day expect any great regularity in the direction of the winds, if we project them on circles, and we must be content to take this day's evidence as before, as proof only that the general law of direction has been always followed as far as we have any evidence.

II. *The size of the vortex.*

From what has been before said, and from the chart, it will be seen that the storm appears to have been more extensive about the 27*th*, and again to have expanded on the 1*st May*, but our evidence for both these days is incomplete. That of the 27*th*, because we have but two ships by which to be guided, and that of the 1*st May*, because the only evidence we have is all on one side, and within a small arc of the circle. Hence we must say, that *it appears* to have been, while crossing the Bay a vortex of about 260 miles in diameter; and that *it may have been* larger at its commencement and termination. The Coringa hurricane of *November* 1839, is, I think, clearly enough evidence of a storm contracting in size, and this may be one of a storm first contracting and again expanding? for as, in truth, we know so little of the laws which govern these phenomena, all we can do,—all at least that I can venture to do,—is to set down the evidence carefully, with such conclusions as may strike us. Our evidence, and our conclusions will all, I trust, be weighed out and scrutinized by abler hands and heads.

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* I suspect some inaccuracy in the log of the "Beacon" for this day, but have not been able to verify my supposition.

III. *The rate of progression of the storm.*

From the centres laid down, this will be as follows:—

27*th April*	to the	28*th*	... ...	175 miles
28*th*	to	29*th*	... ...	350
29*th*	to	30*th*	... ...	113
30*th*	to	1*st May*	... ...	175

Of these we must perhaps exclude the centre of the 27*th*, for which we have but too little evidence. It is nevertheless possible, that as the track of the storm, if it was then completely formed, crosses the lofty hills of the Andamans (2500 feet high, says Hamilton) it experienced some sort of check from them on its progress? It is a curious coincidence, that after laying down, as well as I could, the centre of the 1*st May*, I found that I had given the storm 175 miles of distance from the centre of 30*th April*, which is exactly what it appears to have made on this day when crossing the Andamans! It was forcing its road over the Cuttack hills between the 30*th* and 1*st May*, as over those of the Andamans, between the 27*th* and 28*th April*. The centre of the 28*th* must be nearly correct, being so close to the *Nusserath Shaw;* as well as that of the 29*th*, for which we have the able log and chart of Captain Smoult of the *Freak;* and that of the 30*th*, which depends upon the position and shift of wind, an hour before noon, of *La Belle Alliance*, and at Pooree 7½ hours after noon, which do not admit of any great error.

	Miles ꝑ day,		Miles ꝑ hour
The four distances above stated, give an average of	203	or	8½
The last three distances give ...	213	or	9

But in both cases, the great distance travelled is that between the *28th* and *29th*. We cannot be far wrong in assuming this as correctly laid down, I think, when we look at the carefulness of the logs, and the remarkable rapidity with which the storm reached and passed some of the vessels? We may therefore take it as an instance of a storm in the Bay which, for this part of its track,—*28th* to *29th*,—travelled 350 miles in 24 hours; or something more than 14½ miles per hour! *Why did it travel so slowly again, from the 29th to the 30th?*

We must take the vortex of the *28th* and *29th* to have been at the surface of the ocean, and, for any height with which we have to do, call it an aerial column of, say, 250 miles in diameter. Such a volume of displaced air, moving with such a velocity, must necessarily be felt at some distance preceding the line of its track. It meets as it approaches the coast with one direct obstacle, nearly at right angles to its course—the Coromandel range, and with the deflecting force of the SW. monsoon, which the *Elephanta*, we see, is bringing up along the coast. Whether these are the causes, or whether they are sufficient ones, I cannot presume to decide; they appear to me to be probable ones at least, and to account fairly enough for the decreased rate of progress and change of direction. The tracks perhaps should be laid down in curves, and not in straight lines? The facility of tracing these last, and of bringing them to fixed points at noon, have made me prefer the form of straight-lined tracks, in this and my former Memoirs, to curved ones.

On the *29th*, the centre of the storm was 150 miles from the coast, and we may say that it was 180 miles from the first considerable range of hills; so that taking it, as is seen in the diagram, to be 260 miles in diameter, or 130 in radius, the aerial wave, which preceded it, was just about impinging on the hills at noon. How soon the re-action of this on the vortex was felt, we have no means of judging. The NE. wind experienced by the *Elephanta* on this day, when she is just on the outer verge of the storm, and which it will be noted is *against* the coast wind which she was bringing up, seems to be an effect of this atmospheric disturbance; as the "*heavy North-easterly swell*" of the *30th* evidently is of that of the storm; the aerial wave having thus preceded the aquatic one by about 24 hours.

In tracing this storm farther inland, we have first the report from Chuprah, in Lat. 25° 46′ N. Long. 84° 46′ E. bearing about N. 8° W. 228 miles from the spot where I have placed the centre on the *1st*

May,* which spot is in Lat. 22° N., 85° 25′ E. I have printed it, but am doubtful if it has any relation to our storm. From Mr. Ravenshaw's table, it appears, that he had a storm on the 26*th April*, another on 1*st May*, and a third on the 5*th May*, but as our centre for the 1*st May* at noon cannot be very far wrong, we can scarcely suppose that the impediments the hurricane met with can have reduced its rate of travelling so as to allow it only a motion of less than 228 miles in four days and ten hours, which is the difference between noon on the 1*st*, and 10 P.M. on the 5*th*; when, from the gale being at East, the centre must still have borne South from that station, reducing the rate of its progressive motion to perhaps 40 miles a day!

The reports from Delhi and Kurnaul, however, seem to show that the storm experienced there on the 4*th*, may have been owing to the last efforts of this one which we have been tracing. Kurnaul is in Lat. 29° 40′ N., and Long. 77° 57′ E. bearing, therefore, N. 41° W. 624 miles from our centre on the 1*st May*. From noon on the 1*st* to, say midnight, on the 4*th* are 3½ days, and this would give the distance travelled to be 178 miles per day. In the fluctuating nature of the storm, there is much of what we might, I think, expect from impulses of the kind in the neighbourhood of high mountains, and when their forces were nearly expended. If we admit these squalls in the neighbourhood of Delhi to have been part of the Cuttack storm, we shall then have traced it from the Andaman Islands to that place!

There is one more circumstance to advert to, before closing this Memoir, which I should not omit; and this is the great amount of property which, even with what we now know, has been clearly lost by ships running headlong into the storm; and this might, in all human probability, have been saved, by heaving to for twelve hours. If the tracks of the *Nusserath Shaw* from the 27*th* to the 28*th April*, of the *Freak* from the 28*th* to the 29*th*, of the *Vectis* from the 28*th* to the 29*th*; and of the *Flowers of Ugie* from the 28*th* to the 29*th*, be examined on the chart, it will be distinctly seen, that each of these vessels ran down from 100 to 150 miles to meet, or cross, the track of the hurricane! while, at the rate it was travelling, and with the infallible warning which their Barometers and the direction of the wind might have afforded them of its approach and direction, heaving to for twelve hours would have saved them all the heavy loss which they must have incurred;—to say nothing of the awful risk of foundering, which three out of the four certainly ran. If we take the amount of losses by these ships, and that by the *Marion* and others, we shall have a very large sum; the greater part of which might probably have been saved by the simple use of our knowledge of the Law of Storms. We see that they had successively the gale increasing to a storm from North to ENE. and ESE. The centre of the vortex must then have been to the Southward and SEastward of them, and their safe plan was, to heave to, for a few hours, on the starboard tack; when, being always on the right hand side of its path, they would have had the wind draw from ENE. to SE. and SSE. as we see it did with the *Nusserath Shaw* on the 30*th* and successively with all the others. The wind would then have been about at the violence of *a gale*, as it was with the *Tenasserim;* at the very time it was dismasting the *Nusserath Shaw;* and with the *George and Mary* when it was tearing the *Freak* and *Vectis* to pieces.

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* I have learnt that about this date a very severe storm was experienced in the southern and eastern parts of the Midnapore district, but no reports have reached me.

The Diagrams.

As for the 27*th* we have only two vessels on opposite sides of a circle, and no shift of wind, or other corroborative evidence, I have not thought it worth while to give a diagram for this day; nor for the 28*th*, where the centre depends partly upon the rate at which the vortex may have been travelling, and partly on the correctness of the *Nusserath Shaw's* position at noon. I have already stated why I take the circle of the hurricane not to have much exceeded 300 miles on this day.

On the 29*th* and following days, however, we have several ships, and these complications require a diagram to illustrate them, which I have accordingly, as before, given for each day.

Since the foregoing pages, were placed in the hands of the printer I have been favoured by Captain Pope, of the ship *Marion*, with a copy of his protest in consequence of the dismasting of that ship. The following is a summary extract from it, altered to Civil time.

"The gale may be said to have fully commenced by noon on the 28*th April* 1840, at which time she was in Lat. 15° 10′ N. Long. 90° 15′ E., and it was then blowing a hard gale at NE. By 3 P.M. Barometer falling fast, made every preparation for bad weather. At 5h. 30′ P.M. a complete hurricane; the ship hove to on the larboard tack. A little after 6 P.M. lost all three topmasts and both cutters. At 7 P.M. wind veered to the Northward and Westward at 7h. 30′, blowing a severe hurricane; Barometer 28·00 inches, ship a complete wreck; wind veered round to Southward; a heavy sea struck the stern and stove in the upper dead lights. At 8 P.M. Barometer rising, but still blowing *beyond description*; the gig blown away during the night; 2 feet water in the well. Midnight gale moderating. Barometer 29·00; ship lurching heavily.

"*29th April.* Daylight moderating. Bar. 29.50."

The Chart having been lithographed before this log reached me, I could not place the *Marion* upon it; but as she must have drifted to about Lat. 15° 00′ N., Long. 90° 00′ E. at 7-30 P.M. and these lines intersect each other; her position will be easily seen; as being about 115 miles from the centre of the storm on the *28th*; which as we see by the veering of the wind, passed to the Northward of her at about 7h. 15′ P.M. giving a velocity of 16½ miles an hour for this short space of time; while as we have seen, the average velocity for the twenty-four hours was 14¼ miles. This is good evidence of the truth of our work.

Proceedings of the Asiatic Society.

(Wednesday Evening, 3rd February, 1841.*)*

The Honorable Sir E. RYAN, in the Chair.

The following gentlemen proposed at the Meeting of the 13th January last, were ballotted for, and duly elected; viz.

Capt. W. R. FITZGERALD.

C. B. TREVOR, Esq.

RAJA KHAN BEHADOOR, Khan of Gyah.

The necessary communication of their election, and rules of the Society for guidance, were ordered to be forwarded to the parties.

Capt. W. SMYTH, Bengal Engineers, was proposed a Member by G. A. BUSHBY, Esq. seconded by the Officiating Secretary.

Library and Museum.

Carey's Principles of Political Economy, 8vo.	3
——— Essay on the Rate of Wages, 8vo.	1
——— Credit System in France, Great Britain, and the United States,	1
——— Answers to the Question—"What constitutes currency?" &c. &c...	
Presented by the Author,	1
Pickering's Eulogy on Dr. Bowditch,	1
Tyson's Discourse on the Surviving Remnant of Indian Race,	1
——— Memoir of T. C. James,	1
Du Ponceau and Fisher's Memoir on the History of the Celebrated Treaty made by W. Penn,	1
Oriental Christian Spectator. New series, vol. 1st, No. 12,	1
11th Report of the Inspectors of the Eastern State Penitentiary of Pennsylvania,	1

Journal of the Academy of Natural Science of Philadelphia, vol. 8th pt. 1st 8vo.	1
Calcutta Monthly Journal, &c. 3rd series, No. 73, ...	1
Madras Quarterly Medical Journal, vol. 3d. No. 19, ...	1
Murray on the Topography of Meerut, Calcutta, 1839, ...	1
Communication, Faiteà la Société Philosophique Américaine. Philadelphia, 1840, ...	1
Dewan Waheed MSS. (in Persian) 8vo. Presented by Rajah Soorag Narain Roye, ...	8

The following report was submitted by the Officiating Curator for the month of January last:—

H. W. Torrens, Esq,
Sir, *Secretary, Asiatic Society.*

I have the honor to submit my report for the month of January.

"*Paleontological, Geological, and Mineralogical Departments.*—I have proceeded at every spare moment, in arranging the collections most in need of it, but I have been so often interrupted in this, by the necessity of searching out names, localities, &c. that I have commenced a tabular index to the Society's Journal, of matters relating to these departments, which will not only save much time to the Curator of the Museum, but be of great use to visitors and students; as if printed at the end of our Catalogues, it will form both a summary and a table of references. This is particularly needed by strangers, who do not know what we have been doing of late years, and what we possess; or who do not know where to look for papers referring to the subjects or localities, on which they may desire information. Four volumes of the eight published ones of the Journal, are thus indexed, and page 1 of the index is sent herewith, for inspection.

The duplicates of Captain Hutton's Himalaya specimens, are packed for transmission to the Honorable the Court of Directors. I have carefully compared and assorted the two series, so as to insure their perfect correspondence.

"*Osteological and Mammalogical Departments.*—Nothing new to report.

"*Ornithological Departments.*—The duplicates in this department are all packed for transmission to the Court of Directors; being 270 specimens.

"*Fishes, Reptilia, &c.*—Our duplicate snakes also (66 specimens) are packed for transmission to the Court of Directors.

"The additions to the Museum this month have been as follows:—

Dr. T. R. Roth, { 3 specimens, Procellaria capensis, Stormy Petrel, or Mother Cary's Chicken.—Stuffed and mounted.
1 specimen, Diomedia Chlororhynchos, or Yellow-billed Albatross.—Stuffed and mounted.

"Curator.—1 Specimen, Falco ater, Common Kite.—Stuffed and mounted.

"Purchased.—1 Viverra Genetta, the Genet.—Stuffed and mounted.

As. Soc. Museum, }
31*st Jan.* 1841. }

I have, &c. &c.
H. Piddington,
Actg. Curator, As. Soc. Museum.

The duplicate specimens alluded to, as also the duplicates of Captain Hutton's Spiti Valley Geological Collections, have been forwarded through the General Department of the Government of Bengal, for transmission to the Honorable the Court of

Directors, with reference to a resolution passed at the Meeting of the 13th January last.

Read a letter from Mr. James Dodd, Assay Master at Agra, offering to the Society a valuable collection of minerals chiefly Cornish, most of them good and instructive, and some few rare.

Resolved —That a communication be made to Mr. Dodd, to the effect, that if he should feel inclined to take into consideration an offer for his collection of rupees 600, the Society would be recommended to purchase it, as an addition to their Museum.

The Officiating Secretary noticed the existence of a number of models of crystals in the Assay Office of the Calcutta Mint, where they were of no use, and might with advantage be placed in the rooms of the Society.

Application to the Officiating Assay Master to this effect having been made, and that Officer not appearing to come into the views of the Society as to the expediency of the removal of the models.

Resolved —That the request of the Society be submitted to the Government, so that the Officiating Assay Master may be authorized to transfer the models in question to the Museum of the Asiatic Society.

Read a letter from Mr. Secretary Bushby of the 20th January last, conveying the authority of the Supreme Government to the application of the Society of the 13th November last, to purchase certain instruments and cabinets from the collection of the late Jas. Prinsep, Esq. for a sum not exceeding rupees 1,350.

Read letter from the Officiating Curator of the 25th January last, reporting purchase of the instruments and cabinets for rupees 735.

Resolved —That the thanks of the Society be conveyed to the Government for this grant, and that an order be issued for the payment of the amount, from the General Treasury in favour of the Secretary.

Read a letter from Professor O'Shaughnessy of 21st January last, applying for the use of the Society's rooms, for a course of Lectures.

Resolved—That the Officiating Secretary inform Professor O'Shaughnessy, that the President and Committee of Papers of the Asiatic Society are happy to have it in their power to facilitate the delivery of the course of Lectures he contemplates giving, on the Laws and Effects of Galvanic Arrangements, by placing at his disposal the rooms of the Society, the costs and charges of lighting being borne by him.

Read a note submitted by Mr. W. H. Bolst, Accountant to the Society, on the pecuniary grant made to the Society by the Honorable the Court of Directors, the object being to point out the real intentions of the Court, as connected with that grant.

Resolved—That as doubts are entertained by the Society, a reference be made to the Government, and through them ultimately to the Honorable the Court of Directors, to ascertain whether the Court in authorizing the Government of India to pay the amount of rupees 300 per mensem, intended it as a separate grant for a distinct purpose, in *addition*, and not in *supercession* of that made by the Government of India in July 1837, pending a reference to the Honorable the Court of Directors; and whether the larger subsequent grant is to be considered as merging in the previous smaller one, because it was made as the result of the reference from the Government.

Read a letter from Mr. Secretary Bushby of 13th January, covering correspondence with Capt. Tremenheere, respecting the Geological collections brought out by that Officer from England.

The Secretary stated, that the chamber lately occupied by the model of the Moorshedabad palace, would be available for the collections of Capt. Tremenheere.

Read a letter from Capt. Tremenheere with enclosure, on the subject of Economic Geology in India.

In submitting the paper in question, the Officiating Secretary suggested, that as the best means of availing themselves of Capt. Tremenheere's ingenious production, the Editor of the periodical, called the Journal of the Asiatic Society, be supplied with a copy, and requested to give it as early publication as he can conveniently, in his Journal.

As Editor, the Secretary begged to state, that not only would the paper be inserted if entrusted to him in the Journal, but any number of extra copies supplied to the Society for distribution to whomsoever they please, with no other charge than the cost of the paper they are printed on.

The suggestion of the Secretary was agreed to, and the paper furnished for publication, as proposed.

Read a letter from Mr. C. Visscher, Secretary to the Batavian Society of Arts and Sciences, forwarding results of tide observations in the Archipelago of Batavia, during the year 1839.

Resolved—That the civility be reciprocated, by transmitting to Mr. Visscher for presentation to the Batavian Society of Arts and Sciences, copies of Registers of the rise and fall of the tide at Pulo Island and Singapore, received through the General Department of the Government of Bengal, during November and December last.

Read a letter from Mr. Deputy Secretary Young, of 29th December last, requesting to be favoured with full information regarding the Zoological Collection by the late Dr. Helfer, alleged to have been made over to the Asiatic Society's Rooms.

The Officiating Curator having been requested to furnish a report on the subject; submitted the following:—

To H. W. Torrens, Esq.
Secretary Asiatic Society, &c. &c.

Sir,

With reference to letter No. 17, from the Deputy Secretary of the Government of Bengal, conveying a request from the Right Honorable the Governor of Bengal, to "be furnished with full information regarding the Zoological collection alleged to have been made over to the Museum of the Society" by the late Dr. Helfer; I have the honor to report that—

1. It appears by the Society's proceedings of 10th December, 1838, that the *Ornithological* part only, of Dr. Helfer's collection was originally deposited at the Asiatic Society's rooms; the Honorable the President in Council having referred to the Society, as per Mr. Secretary Prinsep's letter, of 12th September, 1838, soliciting its advice and assistance, generally in the matter; and also as to the separation of the specimens, that could be spared.

See pp 836, 337, of Journal Asiatic Society herewith sent No 81 for September 1838

2. That the division of the collection into three parts, as recommended by the Museum Committee, was made at the Museum; and that of these, one, being packed by the Curator and Assistants, was forwarded to Government for shipment to Europe, for the Honorable the Court of Directors. Dr Helfer's part was taken away by him, at that time.

3. That of the part left for the Society, some birds were mounted, and the remainder, being 173 (duplicates) are now in the Museum.

4. These duplicates form a part of those (322 specimens in all, and mostly birds) which at our last December Meeting, I recommended being sent home to the Honorable the Court of Directors without delay; as they would be of value at home, if only for exchanging, while they had almost none here, and were necessarily fast deteriorating.

5. No collections of the classes Mammalia, Reptilia, or Pisces, from Dr. Helfer, have reached the Society, that I can learn. With the birds are three skins only of Mammalia (two monkeys and one of a squirrel), and these, no arsenic having fortunately been used in their preparation, are in a very indifferent state.

6. This remark applies equally to the birds; but it is possible that European taxidermists may succeed in mounting and repairing a very considerable number of them; and in Europe they would thus last a long time.

As. Soc. Rooms,
13*th January*. 1841.

I have, &c. &c.
H. Piddington,
Acting Curator, As. Socy's. Museum.

A copy of the foregoing paper, together with No. 81 of the Journal Asiatic Society, was forwarded for the information of the Government.

Read a letter from Dr. F. Tamnau, Jun, of Berlin, of 8th November last, containing proposals of exchanging minerals of the East, with those from Germany, Sweden, Norway, &c.

Resolved—That the following reply be made to Dr. Tamnau, *Jun.*

To Dr. F. Tamnau, *Jun.*
Berlin, Prussia.
Care of Messrs. Tamnau & Co. *Hamburgh.*

Sir, *As. Soc. Rooms, 3rd February,* 1841.

I am directed by the Asiatic Society of Bengal, to acknowledge the receipt of your letter under date 8th November 1840, and to express to you on the part of that Body, the lively feeling of satisfaction with which it finds itself in communication with you, particularly under circumstances which promise so much advantage to the Society, and prove in a most gratifying manner, the flattering consideration with which you regard it.

The exchange you propose is one which the Society would for itself gladly close with, but there are reasons which induce it to pause before concluding an arrangement, the terms of which are unexceptionable.

The Museum of the Society in the department of Mineralogy and Geology, has been from causes which it would be impossible now to enter upon, deprived of the advantages of systematic arrangement, so necessary, or rather so indispensable to its utility. Rich in specimens, it has been most unfortunately deficient in the means of arranging them, while difficulties of other kinds have interfered with the facility of classification to such a degree, as to leave the Society in doubt even as to the real extent and value of several of the collections it possesses.

Under these circumstances, I am desired to inform you, that the Society would rather propose to commence the interchange of specimens, than suffer you to do so; lest it should so happen, that the value of what it would be in a position to offer, should be incommensurate with that of the collection which you might forward.

I shall take occasion to address you again on this subject, as the gradual arrangement of the Museum proceeds, begging in the mean time to inform you, that the list you have furnished will be carefully borne in mind, and specimens, if available, put aside for transmission to you through Messrs. Allen and Co., Booksellers, Leadenhall Street, London; to whom all communications to the Asiatic Society of Bengal, may be at all times addressed.

Be assured, Sir, of the sentiments of respect, and esteem with which

I have, &c.
H. Torrens.

Read a letter from Capt. T. S. Burt, forwarding Copy of an inscription from the neighbourhood of Mount Aboo, and detailing the result of his researches there, and elsewhere in Rajpootana.

Read communications from Capt. Hutton, regarding his late visit to Killa Bheest, near Khelat, in search of inscriptions.

Read a paper from Lieut. Baird Smith, on the practical properties of the Galvanic Battery.

Read a paper from Dr. Jameison, regarding some interesting Geological discoveries.

The Secretary informed the Meeting that the communications from Capts. Burt and Hutton, Lieut. Baird Smith and Dr. Jameison, would be published in early numbers of the Journal.

Read a letter from Major **Rawlinson** of Candahar, offering for publication in the Journal of the Asiatic Society, his Memoranda on the Persepolitan inscriptions, and his copies of them. It was observed by the Secretary, that anxious to give the Society the credit of first publishing the results of that distinguished antiquary's important discoveries, he would place the material, on its arrival from Candahar, at the disposal of the Society for publication in the Transactions of the Society, a course, observed the Secretary, he thought best calculated to give the record of Major **Rawlinson's** priority of discovery a permanent existence, while, in order to meet that Officer's wish, that this right should be asserted as soon as possible, he would anticipate matters, by giving the letter press in the Journal, as from the Transactions, while engravings of the cuneiform inscriptions were being prepared.

Referred to the Committee of Papers.

On the proposal of the Honorable the President, Sir E. **Ryan**, seconded by the Honorable H. T. **Prinsep**, the Officiating Secretary (H. **Torrens** Esq.) was appointed Secretary to the Asiatic Society of Bengal.

For the presentations and contributions, the thanks of the Society were accorded.

JOURNAL

OF THE

ASIATIC SOCIETY.

Vocabulary of the Ho language.—By Lieut. TICKELL.

GOD, SING BONGA, OR MARANG BONGA.

Persons, Distinctions, &c.

a man, ho *or* horo,
woman, èra,
father, appoo,
mother, enga,
son, koáhōn,
daughter, koŏihōn,
nephew, hōntédèt,
brother (elder,) baó,
brother (younger,) oondítté,
brothers, oondi boko,
sister, missee, (?)
husband, herel *or* hám,
wife, èra,
old man, hám
old woman, booree,
adult woman, ballé hapanoom,
adult youth, ballé sepèd,
middle aged man, gandee bar,
boy, koá,
girl, kŏoee,
lord *or* master, gōmké,
servant, chittratannee,
fostered servant without wages, } dassee,
hired labourer, nallatannee,
beggar, koitannee,
thief, komboo,
diviner, oja *or* soka, (*Ooria,*)
priest, déoree, (*Ooria,*)
witch *or* wizard, najumtannee,
a Lurka Kole, Ho,
a Nagpoor Kole, Orang,
a Bhoomij, Mootkan,
a bramin, bamee,
foreigners in general, dickoo,
blacksmith, kamar,
potter, koonkal,
gwalle (drover,) gow, (*Ooria,*)

weaver, piaï *or* mâlee,
work, pȳtee,
name, notoom *or* noomoo,
name-sake *or* friend, sákee,
business (affair,) kajee,

Edibles, &c.

boiled rice, mandee,
dinner (eatables) doondoo,
meat, jeeloo,
egg, petto *or* billee,
salt, booloong,
ghee, gōtōm,
oil, soonoom,
water, dah,
spirits, arkee,
rice-beer, eelee,
milk, toá,

Features of Country, Elements, &c.

fire, sengel,
water, dah,
earth, oté *or* hassa,
air, hoio,
rain, gamma dah,
thunder, reemeed saree,
lightning, hicheer,
hail, harril,
frost, rattan dah,
dew, saparoom,
clouds, reemeed,
wind, hoio,
the sun, singee,
moon, chandoo,
a star, eepil,
a forest, beer,
a grove, tota,
a sacred grove, saér,
a mountain, booroo,
a small hill, gootoo,
lofty *or* huge rock, hootoop,
a flat rock *or* slab, sereng,
a stone, dirree,
a valley, kocha,
a ravine, hooang,
a scrub jungle, patta,
a grass jungle, doomboo,
a cave, oondoo,
a plain, pee,
a river, garra,
a rivulet, lore,
a spring, seteng sood,
a well, chooa *or* sood,
a water-fall, dooltan dah,
sand, geetil,
clay, hassa,
soil, oté,
mud, lossod,
a deep pool, ikïr,
a road, horá,
a village, hattoo,
a temporary dwelling in the woods,
a house, oá,
a sleeping house, mandee oá,
a farm house in the fields, oosám oá,
a hut to watch crops, gooyoo,

a granary, kōlōm,
cattle pound, gōt, (*Ooria,*)
byre *or* cow house, gow oá
a ricefield, koondee,

Time.

a year, sïrma,
last year, má,
this year, missad,
next year, kalom,
year after next, tèr kalom,
some years ago, má mán,
a month, chandoo,
a day, má,
daylight, singee,
day by day, dimsee,
sunshine, jété,
yesterday, holá,
day before yesterday, holater,
to-morrow, gappa,
day after to-morrow, miang,
two days after to-morrow, indree,
three days after to-morrow, tèrtree,
to-day, tising,
last night, enang needa
night, needa
dark, nooba *or* hendé
light, marsal
morning, settá
very early, eedang bo
cock crow, seemko rar
evening, aïoob
midday, tikin
afternoon, tara singee
midnight, talaneeda
one day, moosing
two days, barsing
three days &c., appé má &c.,
now-a-days, nimïr
the other day, hola mán

Numeration.

one, miad,
two, barria,
three, appia
four, oopoonia,
five, moya,
six, toorooia,
seven, áÿa,
eight, eerilia,
nine, arreá,
ten, gèl,
eleven, gelmiad,
twelve, gelbarria &c.,
twenty, hissee,
twenty-one, hissee miad &c.
thirty, dosee,
thirty-one, dosee miad &c.
forty, barhissee,
fifty, barhisseegèl
sixty, appéhissee,
seventy, appéhisseeglè,
eighty, oopoonhissee,
ninety, oopoonhisseegèl,
one hundred, mee sow,
two hundred, bar sow &c.

half, talla,
whole, jaké,
half a maund, bissea,
a seer (measure), pattee,

rupee, taka,
eight anna piece, adelee,
four anna piece, sikkee,
pice, dibia,
a coss, gowdee,
a cubit, mooka,

Miscellanea, Tools, &c.

cloth, lijia,
string, bȳre,
a fowra (shovel), koollam,
hatchet, haké,
small ditto, kōndé haké,
adze, hassee,
chizel, rooka,
crowbar, sobol,
pickaxe, saba,
hammer, kotassee,
pinchers, sandasoom,
scraping knife, katoo,
nails, mèdkinniloom,
lock of a door, bákenesèt,
bellows, sinnipoot,
file, rèta,
iron, mèd,
plough (yoke,) ár,
shaft of plough, issee danda,
ploughshare, nȳl,
iron point of ditto, pál,
pin of yoke, samballee danda,
thong to tie yoke & shaft, nanglee,
sugger (jungle hackery), saggee,
shafts of ditto, tagree jangee,
thong to lash on yoke, chamta,
axletree, ligga,
cross bar, joining the shafts, sambalee danda, *or* panjaree,
mud board, karra,
its handle, kaba,
earthen pot, chatoo,
lota, moota,
basket, dalán,
small basket, tōnkee,
battle-axe, kappee,
bow, ásar,
arrow, sar,
barbed arrow, kán sar,
plain arrow, kootoo sar,
blunt headed ditto, tootee,
trident ditto, roompa,
fishing arrow, pōrla,
transverse ditto, sōmpa sar,
bolt (for a kind of cross bow), tonga sar,
spear, chooree,
jingling staff (to frighten scorpions, &c.) teneké danda,
a stick *or* staff, danda,
a club, sōnta,
a flute, rootoo,
drum, doomang,
fiddle, banam,
pan-pipes, eepoo rootoo,
kettle-drum, damma,
booang (a cocoanut with horse hair stretched across), bang boong,
cow horn, sakwa,
a necklace, hissïr,
brass bracelets, sakom,
ditto on upper arm, taró,
ear-rings, moorkee,

ear chain, joroé and booin,
nose ring, koodmoo,
peeper putta, peerpeeria,
armlets, andoo,
toe rings, katta pola,
finger rings, tee pola,
a saree, sȳe lijia,
thread (for binding hair), chindee,
dip net, janalum,
large ditto, kabra,
casting net, mahajal, (*Ooria,*)
small dip net, ganaree,
basket weir, koombat,
dip basket, sonobo *and* sonolong,
trap basket, jimmeree,
fishing hook, bunassee,
fishing rod, bunassee danda,
line, bunassee sootan,
float, pooi,
bat fowling net, lowta,
clap net, oé janalum,
bird lime, atta,
brick trap, jampa,
quail trap, room room,
hare net, kooltrey janaloon,
tiger trap (made like a huge rat trap,) koola ranatang,
a mat, jattee,
a bedstead, parkum,
a stool, gandoo,
rafters, senéōr,
uprights, koonto,
wattling branches, jatta,
thatch, sȳoo,
door, dooár,
wall, genil.

Parts and affections of the Body.

the body, homo,
— head, bo,
— hair, oop,
— eyes, mèt,
— nose, mooa *or* moota,
— bridge of nose, mooa dandee,
— ears, lootoor,
— mouth, â,
— teeth, danta,
— jaw teeth, gandoo danta,
— gums, danta jeeloo,
— tongue, aláng,
— cheeks, joá,
— eyebrows, mèt kandom,
— throat, hoto,
— nape of neck, sèrom,
the nostrils, mooá oondoo,
— breast, kooam,
— shoulders, tarran,
— fore arm, soopoo,
— arm, tee,
— hand, tee,
— palm of hand, talka,
— fingers, angolee, (*Ooria,*)
— nails, rama,
— claws (of animals,) sarşar,
— thumb, engadaro,
— armpit, hatla oondoo,
— nipple, toá,
— backbone, sindree jang,
— belly, lȳe,
— navel, bootee,

the penis, loé,
— testes, billee,
— pudendum, roojee,
— nates, doobooi,
— anus, ee oondoo,
— thighs, booloo,
— knee, mookooi,
— leg, koorchoo katta,
— calf, dooroonga,
— foot, katta,
— toes, daro,
— urine, dookee,
— semen, {poońdee dookee *or* hōn dookee,
— fœces, ee,
— saliva, bé dah,
— pus, sondro,
— blood, mȳoom,
— brains, hatang,
— bowels, joroye lȳe,
— stomach, pora lȳe,
— heart, soorr,
— liver, eem,
— spleen, pilla,
— gall, issia,
— shoulder-blade, dowree,
a bone, jang,

veins, patta,
sinews, sting patta,
fever, homo hassoo,
dysentery, lȳe dool,
epilepsy, ambarree,
small pox, maree, *(Ooria,)*
cholera, oola,
lame, lōkey,
maimed-handed, loonkee,
blind, sooree,
deaf, kalee, *(Ooria,)*
palsied (he is,) tīrtïr tannaī,
dumb, konda,
squinting, apïr mèt,
stuttering, alangé jereana *or* jèr,
rheum, manda,
cough, koo manda,
flatus, gassee,
leprous, toondoo bandia,
pain, hassoo,
shivering, rookoo,
heat, lolo,
itch, kassara,
mustaches, á goochoo,
wise teeth, joá jang,
poma adami, oot totoá,
tail, chalom,

Quadrupeds.

monkey *(macacus rhesus,)* gȳe,
lungoor *(circocebus entellus,)* sarra,
tiger, koolá,
a very large old tiger, garra koom,
leopard, teón koola,
tiger-cat, bow,
common cat, poosee *or* billȳe,
small tiger cat, beer billȳe,

hyena, {hadgar koolá, *or* mendee koolá,
large red jackal, tow koolá,
common jackal, kurmchá,
fox, tooyoo,
dog, seta,
wild dog, tannee,
bear, banna *also* baloo,

ratel *or* Indian badger, (*mustela ratalla,*) oosa banna,
civet cat, sōgōt,
great red squirrel, hondeng,
flying squirrel, ooral,
common palm squirrel, too,
hare, koolhȳe,
porcupine, jeekee,
rat, kattia,
bandikote rat, gooroo,
musk rat, choondee,
mouse, chootoo,
ichneumon, saramboombooi,
pteropus (flying fox) badooree,
small bat, chootoo bardooi,
manis *or* pangolin, armoo,
saumer deer, saram,
neel gȳe, mooroom,
female neel gȳe, soosam,
spotted deer (axis,) poosta,
four horned deer (chickera), oré,
muntjac deer, seeleep,
antelope, badoo,
memina, yàr,
gower, sȳnl,
arna, beer biár,
common buffalo, karra,
ditto female, bitkil,
cattle in general, ooree,
calf, miew,
two or four toothed bull, damkom,
young bullock, boysur,
barren cow, gowee,
young cow (two or four teeth), pèta,
goat, boda mèrom,
gelt goat, byda mèrom,
sheep, mènree,
pig, sookree,
wild boar, beer sookree,
horse, sádōm,

Birds.

spotted eagle, doomoor kwid,
jungle eagle, booroo kwid,
kite, kwid,
great meadow hawk, péré kwid,
chicqucra hawk, reechee,
peregrine falcon, beesree,
ruby-eyed hawk, halloo,
pied buzzard, tookoo sambé,
jara honey buzzard, kora kwid,
kestrel, sookla reechee,
great horned owl, doondoo,
little owl, pècho *or* kokōr,
butcher bird, charree,
Indian roller, toián,
king crow, dánchoo,
oriole, bocho,
hoopoo, pootamdoombee,
cassican crow, hoyán,
bulbul, chéporr,
Malabar hornbill, deoree,
common *or* gingi ditto, mát tongé,
blue-throated barbet, gootoor,
Philippine barbet, koodn,
great parakeet, meeroo,
lesser ditto, kéad,
common kingfisher, chooing kïkïr,
great ditto, liangtong kïkïr,
pied ditto, marang kïkïr,
chesnut headed ditto, garra kïkïr,
gold-backed woodpecker, hám éré

middle spotted ditto, gegèd,
cœrulian flycatcher, hattar,
scarlet and black flycatcher, } pykee oé,
honey sucker, sooi oé,
duree finch, gondree,
reed grosbeak, peereed,
pit lark, soorooi oé,
water wagtail, ooree manda,
koél, toaó,
mÿna, saloo,
hill mÿna, booroo saloo,
crow, ká,
Indian magpie, hoorlee,
crow pheasant, sengel topa,
goat-sucker, hapoo,
swallow, hèn,
common dove, potám,
green pigeon, hooá,
domestic pigeon, doodmool,
peacock, mara,
ditto with full train, atoommara,
cock, seem,
jungle cock, beer seem,
black partridge, hendé chitree,
grey partridge, cheetree,
quail, bassa batta,
bush quail, gerreá,
button quail, della door,
rain quail, batta,
double spur partridge, askal,
adjutant stork, gooroor, *(Ooria,)*
sarhuns (sÿrus,) hoorr,
damoiselle crane, ago maree,
white stork, ganda keea,
great white egret, solong kantoo,
common paddy bird, ko,
black stork, kankee,
black ibis *or* curlew, raón,
Norfolk plover, kooi toopee,
bastard florikan, kenkoto mara,
snipe (jack or whole,) kèt batta,
painted snipe, kōn batta,
sandpiper, doolbee,
cormorant, dah ká,
dabchick, dah seem,
nobbed goose, toopee hey dégé.
whistling teal, hé dégé,
girra teal, merōm dérébet,
brown cuckoo, bota kakoo,
a bird, oé,
nest, tooka,
egg, petto *or* billee,

Reptiles.

crocodile, pÿnl,
iguana, torr,
chamelion, kaka rambad,
crested lizard, kaka,
small lizard, rété kaka,
rock lizard, sereng kaka,
monitor lizard, kettra,
tortoise, horro,
land tortoise, pee horro,
a frog, choké,
a toad, rotopoto choké,
a snake, beeng,
cobra capella, pando nagoo,
cophia, russellii, pogo jarra,
dhomun, jamboo beeng,
kerate, barra cheetee,

tree snake, hartoo,
great ringed snake, sakōm beeng,
black and white kerate, booroo gondȳte,
earth adder, noor beeng,
coluber constrictor, patáȳan beeng,
python, toonil,
grass snake, loyong beeng,
water snake, dah doondoo,
amphisbœna, soonoom beeng,
scorpion, marmar,
scolopendra, sengel marmär,
mygale, *or* bird-catching spider, koola bara dam *or* k bindeeram,
jungle spider, bindeeram,
crab, katkom,

Insects.

bug, majee,
cassida beetle, roopa cheedoo,
male (winged) ant, boordool,
queen white ant, boonoom enga,
red tree ant, how,
procession ant, hab moi,
little red ant, moi,
black ant, tonto,
boatman, gowcheedoo,
water clock, dahooroo,
pipula, dah cheedoo,
white ant, needeer,
water scorpion, chacha hata cheedoo,
jungle hive bee, toomblee,
wasp, soorpang,
carpenter bee, pérom,
great black bee, bah ooroo,
ichneumon fly, koonkal ho,
muskeeto, peechoo *or* siking,
beetle, sadom cheedoo,
tumble dung ditto, ee ooroo,
capricorn ditto, hopo,
fly, roko,
tusser moth, loomam cheedoo,
butterfly, pampal,
louse, tilloo,
flea, sikoo,
tick, tickee, (?)
grasshopper, sōmsorr,
mantis, banna jye jye,
cricket, tété,
caterpillar, jependér,
coccoon, koá,

earth worm, linda,
leech, happad,
muscle, gendr,
fish, hakoo,

Trees, &c.

a tree, daroo,
branch, koto,
leaf, sukám,
thorn, janōm,
flower, bah,
fruit, jo,

tamarind tree, jojo daroo,
peepul, hessa daroo,
burgut, bȳe daroo,
jack tree, ponso daroo,
plantain, kadal,
mangoe, oolee daroo,
castor oil tree, bindee,
kuchenar, sing á,
Indian laburnum, hurree daroo,
assun tree, hatna daroo,
saul, sarjeem,
jamoon, kooda,
neem, neem,
kurm, koomba,
taree tree, rèldaroo,
tillye, tillye,
kurhar, doorlee,
dhaó, heseldaroo,
gloriosa superba, bing kichoom,
bȳre bush, bakra,
water lily (pudm,) tȳ bah,
a salook lily, salkát,
mowhooa tree, mad kum,
mowhooa berry, dolá,
keond tree (ebony,) tirril daroo,
seesoo, kirree daroo,
damun, goin yèr,
gumhar, kasmar,
maize, toorpoo gangye,
dhan, baba,
wheat, gōm,
chunna, chola,
oorid, ramba,
ruhur, sané,
buddee, poondee ramba,
vetch or pea, â,
cotton, katsom,
sugarcane, goor danda,
tobacco, sookool,
soorsoo, mannee,
surgoojia, ramtia,
tie, tilmee,
jowar, tillȳe gangye,
moong, moogee,
thatching grass, sȳoo,
other grasses, doomboo,
wild grape, ee etoár,
cocoanut, boorka,

Adjectives.

acid, jojo,
adult (man,) ballé sepèd,
adult (woman,) ballé papanoom,
bad, etka,
bitter, moroia,
black, hendé,
blunt, toogooma,
broad, ossar,
clean, boogin,
cold, rabang,
cool, réa,
dark, nooba,
deep, ikïr,
dirty, homoo,
drink, booloo,
fair, essel,
fat, rota,
fierce, koorkoor,
foolish, kōnka,
gentle, labit,
good, boogee
great, marang,

green, gádé,
gross, (fat,) dildil,
happy, jeesookoo,
heavy, hambal,
hot, lolo,
hot (taste,) hád,
large, marang,
left (sinister,) koïgné,
light (luminous,) maskal tété,
light (weight,) lar labbar,
long, jilling,
loud, essoo sarian,
little, hooding,
many, essoo,
merry, billing,
naked, tota,
narrow, hooding ossará,
new, nama,
noisy, sarian,
old (thing), paparee,
old (man), ham,
old (woman), booree,
passionate, oán,
pointed, richoop,
pretty, boogee nellotea,
proud, marang mordo,
plentiful, poora,
passive, happá,
rabid, bala booloo,
ragged, sèr,
right (dexter,) etom,
rough, kété *or* illing,
round, gota,
red, arra,
sad, mundookoo,
salt, hèm,
sharp, lessèr,
short, doongooi,
short (man,) toom broo *or* imiting,
shallow, tembé,
sick, hassoo,
slow (lazy,) gáïr,
small, hooding,
smooth, lebbé,
spotted, kabra,
square, chepèd,
stinking, etka soana,
striped, onol,
strong, iting,
sweet (luscious,) ibilla *or* nōgōd,
slender, sooroo,
tall, sangalee,
thick, rota,
thick (fluid,) eebil,
thin (man,) battree,
thin (fluid,) etang,
ugly, kaboogee nellotéa,
weak, hooding péá,
well (in health,) boogee,
white, poondee,
wicked, etka,
wise, séana,
yellow, sassang,
young, hōn,

Verbs.

to admit, hoojoo cheeteá,
— admit (confess,) èákedtea,
— advance, dárántea,
to arise, ootanteá,
— arrive, setreteá,
— argue, epésérteá,

to ascend, rakabteá,
— ask, kooliteá,
— ask (demand or beg,) asseeteá,
— avoid, ochorenteá,
— awake, enéteá,
— bake, ladéteá,
— bathe, reánteá, kopanteá,
— be, minna, (defective verb,)
— beat, rootea,
— bear (load,) go eedeteá,
— be angry, oantea,
to be ashamed, giewtea,
——— cool, réatea,
——— born, oondooboteá,
——— happy, sookooteá,
——— hungry, rengateá,
——— hot, loloteá,
——— in flames, joolatáteá,
——— noisy, kakaláteá,
——— sad, heatingteá,
——— silent, happánteá,
——— sleepy, doomtea,
——— tired, tagowtea,
——— thirsty, tetangteá
——— open, meeteá,
——— vexed, mundookooteá,
to begin, etétea, ookoorooteá,
— beg (charity,) koiteá
— bewitch, tengenteá,
— bind, tolteá,
— bite, hooateá, habteá,
— bite off, hooatopangteá,
— blame, tomunteá,
— boil (verb neuter,) pooroteá,
— boil, (verb active,) issiniteá,
— break, perechoateá,
— break in pieces, rapoodteá,

to breathe, roonteá,
— bring, agweeteá, awiteá,
— bring forth (young,) honiteá,
— burn, rooiteá,
— bury, topateá,
— buy, kiringteá,
— call, jewteá,
— call (name), metyteá,
— care, heátingteá,
— carry, sábeedeeteá,
— catch, sabteá, sasabteá,
— cavil, tirree mirreeteá,
— cherish, assoolteá,
— cheat, chakadteá,
— climb, dehteá, rakabteá,
— conjoin (2 streams,) léréteá,
— cost, gonomteá,
— covet, malteá,
— conceal, ookooteá,
— copulate, doopooirteá,
— correct, bȳrooȳteá,
— count, lekateá,
— cry (weep,) raêteá,
— cut, hadeteá,
— cut cloth, changateá,
— cut down (a man,) máïteá,
— cover, haroopteá,
— collect, gemèrteá,
— come, hoojooteá,
— cross over, tarrumteá,
— crouch, oogoorookoonteá,
— dance, soosoonteá,
— delay, gareeteá,
— destroy (any thing,) rapoodteá,
— deny, kokodteá,
— descend, agoonteá,
— die, gojoteá, goïteá,

to dig, laéteá, maéteá,
— dirt, homooteá,
— dive, oonoomteá,
— dread, boroteá,
— dream, koomooiteá,
— drink, mooiteá,
— make to drink, anooiteá,
— drip, lingeeteá,
— dry, (v. n.), hanjetteá,
to drive, harteá,
— drown, charoo, } goiteá,
— soor, daboora, }
— eat, jōmeteá,
— embrace, hamboodteá,
— emit, ōlcheeteá,
— emit (urine,) dookeeteá,
— emit (fœces,) eeteá,
— emit (flatus,) gasseeteá,
— exercise, bonga ondongeteá,
— fall, endagoiteá,
— fall (from a height,) jewteá,
— fear, boroteá,
— feed, (or graze,) àtèrteá,
— fell (a tree,) gingteá,
— fight, (shooting,) toopooingteá,
— fight (with swords, &c.,) mapateá,
— find, namanteá,
— finish, sekateá chabateá,
— fish, hakoogoikenteá,
— fling, hoodmateá,
— fly, apïrteá,
— fly, (pop,) etèteá,
— flow, harriteá, doolteá,
— follow, doiateá,
— forget (temporarily,) reengteá,
— forget (totally,) adateá,

to freeze, ratanteá,
— frighten, boroléréteá *or* borocheeteá,
— forsake, bageeteá,
— gargle, poéteá,
— gather (together,) gemerteá, hoonditeá,
— get (obtain,) namteá,
— get behind (hide,) danangteá
— give, eméteá,
— go, senoteá,
— go before, áïṛteá,
— go behind, doiateá,
— go in, boloteà,
— go out, oltea, oléteá,
— go out (quench as fire,) èteá
— go up, rakabteá,
— gore, roteá, roroteá,
— grasp, sabakanteá,
— grieve, heatingteá, mundookteá,
— grow, marangteá,
— hang (suspend,) dangteá,
— hang (kill a man,) oorooï gooïkeeteá,
— hail, (v. neuter,) harriliteá,
— hail, (call out) jewȳteá,
— harm, dookooteá,
— hate, oanteá
— heap, gemerteá,
— hear, aioomteá,
— hit (shooting,) toïteá,
— hide, ookooteá,
— hold, tellȳteá, sabteá,
— howl, rateá,
— hunt, sangarteá,
— hurt, hasoocheeteá,
— hush, hapácheeteá,

to irritate, koorkoorcheeteá,
— issue, andongteá,
— jest, sandabȳteá,
— join, léréteá,
— jump, ooïteá,
— keep, doiteá,
— keep, (in the mouth), latoométeá,
— kill, rogoiteá goikeeteá *or* goiteá,
— kill, (with a club), tam goiteá,
— kiss, chérébeteá,
— know, adanteá, adaoroomteá,
— know, (an acquaintance,) nelroometeá,
— lag, doiateá,
— lash, rooteá,
— last, tȳntea hobowteá
— lament, gámteá,
— laugh, landȳteá,
— lave, kossanteá
— lead, eede atweeteá aïrteá,
— learn, etonteá,
— leave, bagéteá,
— lie, labakajiteá,
— lie down, geetee sengèrrteá,
to light (illumine,) maskalteá,
— light (as a bird,) ȧgoonteá,
— like, [see To love,]
— lime, (bird,) attáteá,
— line, jeedteá,
— load (burthen,) goteá,
— loose, ratȳteá, atȳteá, áëteá,
— lose, adȳteá, aderȳteá,
— lose, (victory,) kádȳteá,
— love, jeesookooteá,
— lurk, oogoorookoonteá,
— make, bȳteá,
— make round, lagotȳteá,
— marry, andeeteá,

to measure, mokȳteá,
— mend, amingteá,
— mind, oodkedteá,
— miscarry, enda ádteá,
— miss, katoïteá,
— mix, missowteá,
— mourn, [see To muse,]
— muse, heatingteá,
— name (a person), noomooteá,
— name (a thing), metȳteá, metáteá,
— nigh *or* near, náïteá,
— obtain, namteá,
— obstruct, baribakedteá, kesedteá,
— open, raéteá,
— oppose, [see To obstruct,]
— offer (on an altar,) domateá,
— pain, hassookeetea,
— pass (by *or* over,) paromteá,
— peep, sangeel nelleteá,
— pierce, ropootooiteá,
— place, doéteá,
— plait, gáéteá,
— plant, beetteá,
— play (fun,) ŏonoongteá, billingteá,
— play (instrument,) orangteá,
— plough, seeteá,
— point at, choondoolteá,
— poison, rédanookedté goïkeeteá,
— praise, essoo booginteá,
— pray (invoke,) dangeteá,
— price, gonomteá,
— pull, orowiteá, towiowiteá,
— pursue, harteá, harsabeeteá,
— push, oodoorteá,
— put, [see To place,]
— quench, éteá,
— rain, gamateá,
— ramble, honōrbȳteá,

to rape, hoinkeeteá,
— reach, seterteá, tegateá,
— read, olsukam porowteá,
— reap, iréteá,
— recognize, nelroometeá,
— relate, oodoobteá,
— remember, adaoroomteá,
— repeat, kajirooȳteá,
— reside, tȳnteá,
— retire, oossanteá,
— return, rooáteá, dooïrteá,
return (going round,) bioorteá,
— ridicule, landabȳteá,
— rip, changateá,
— rise, ootanteá,
— rise (the sun,) olenteá,
— roar, ráteá,
— roast, rappȳteá,
— rub, gassaréteá,
— run, (or run away,) neerteá,
— say, menteá,
— sacrifice, bongateá, domateá,
— salute, joharatweeteá,
— save, bunchibowteá *(Ooria.)*
— scare, borocheeteá,
— scold, erangteá, gondeteá,
— scratch, gutaënteá,
— scream, yewtanteá,
— see, nelloteá, nelteá,
— sell, akaringteá,
— send (away,) kooltyteá,
— send (for,) keáowiteá,
— set (down,) doïteá,
— set on flame, atarteá,
— sew, sooeteá,
— shake (shirer,) v.n. tïr tïrleá,
— shame, giewteá,

to shine, joolteá,
— shoot (at,) tooingteá,
— shoot (kill,) poïteá,
— shove, oodoorteá,
— show, nellecheeteá,
— shut, handiteá,
— seize, sabteá, sasabteá,
— sign (mark,) ankaïteá,
— silence, happacheeteá,
— sin, enkateá,
— sing, doorangteá,
— sit, doob teá,
— slander, cheerȳteá, oomibȳteá,
— sleep, geeteeteá,
— smell, jeeteá,
— smell, (v. n)., soanteá,
— smile, landateá,
— snatch, rapateá,
— snore, hootïrteá,
— soil, homooteá,
— sound, sárioteá,
— sound (depth), tegatam roopteá,
— sow, hereteá,
— skin, potateá,
— speak, kajeeteá,
— spit, béhteá,
— spoil, enkateá,
— square, lachepedeteá,
— stand, tingoonteá,
— steal, kombooteá,
— stink, etkasoanteá,
— *stop*, (v. *n.*) *tȳnteá, tingoonteá*,
— stop, (v. a.) kesedteá, dárumteá,
— strike, rooteá,
— string (a bow,) dahteá,
— suck, lététeá, chopodteá,
— summon, [see Send for,]

to suspect, } amgeng amden tomunteá,
— swear (oath,) sarraenteá,
— swim, oiarteá,
— take, (in the hand,) tellȳteá,
— teach, etokeeteá, etocheeteá
— tear, oë chachateá,
— think (deem,) adkarteá,
— thirst, tetangteá,
— throttle, lingoikeeteá,
— throw, hoodmarateá,
— throw away, endateá,
— throw down, endaéteá,
— tickle, gérégeteteá,
— tie, tolteá,
— transplant, roaéteá,
— tumble, endagoiteá,
— turn, (v. n.) bioorteá,
— understand, aioomooroomteá,
to vex, atteá,
— vomit, ooloteá,
— wake, eneteá,
— walk, senoteá,
— wander, hōnōrbȳteá,
— want (ask,) asseeteá,
— wash (cloth, &c.,) eetkitteá,
— wash (the body,) noánteá,
— wash (the teeth,) karkadteá,
— waste away (the body), oosooteá,
— wet, loomteá,
— wear (clothes,) botoëteá,
— weave, lijjia tingéteá,
— weep, raëteá, yámteá,
— win (victory), málȳteá, mádȳteá,
— wither, roteá,
— work, pȳteeteá,
— wound, gowkeeteá,
— yawn, chábeteá,

Conjunctions, Prepositions, and Adverbs, &c. &c.

yes, èya *or* èá,
no, banno, bannoá,
not *or* not so, ká,
none, bankwá,
certainly, bâtchiad,
perhaps, honang, derang *or* torá,
" Oh, that's it ? " *or* " Say you so ?" } ké ?
and, ando *or* ōndo,
" Of course," ando ?
" I say !" helá ! ettia !
" Is'nt it !" kachia !
" Hullo, there !" ocho hé !
when ? chooila ? okobetár ?
where ? okoiré ? okoitár ?
how many ? cheminang ?
so many, eminang,
then, { emindré, enté, entédo, *or* enété nádo,
forwards, aïrté,
backwards, oosá,
before, aïrté, aïrdo,
firstly, seeda ré,
now, ná,
long ago, moonooré,
afterwards, tȳoomdo, entétȳoomdo,
any one, amba,
with, lo, loté,

alone, } soomang, eskarchim *(A Sontae word,)*
great many *or* very, essoo,
much, poora,
then (at that time,) enbétar,
hither, neepárté,
thither, enpárté,
hence, niaité,
here, nendré,
there, endré,
the other side, } tèrrparte *or* tèrrparparrum,
this side, niparparrum,
in the midst, talla ré,
on one side, kootee ré,
far, sanging,
near, náïté *or* jappar,
above, sïrma ré,
below, sooba ré,
behind, danang ré,
quickly, buddeeté,
separate, essam,
in, *ré*, } both are affixes,
out, by, with, from, *te*, }
the whole, jaké,
the half, talla,
each, mootid,

Adverbs are formed by adding té *to their adjectives.*

like, leká,
a little, anga *or* angalekà,
or else, bandrédo,
why? chikan menté,
"never fear" "there now!" } joo!
"depend upon it" &c. }

To this Vocabulary might be added a long list of terms of relationship, more elaborate in the Ho language probably than in Hindustanee; also a catalogue of *Keelees,* or Clans, into which the Hos are subdivided; but these I omitted ascertaining during my stay in the Kolehan, and the opportunity of so doing is now lost. Many of their proper names are names of birds, beasts, &c, and from their birth they frequently retain nick-names, descriptive of some peculiarity in early childhood.

A few names of Places.

Chȳbassa, the dwelling of Chȳe,
Pootoo dirree, the window stone,
Tonto hattoo, village of ants,
Keead chalom, parakeet's tail,
Hoio hattoo, village of winds,
Geetil pee, the plain of sand,
Bye hattoo, village of Bur trees,
Lossod ïkïr, the muddy pool,
Roko sookoá, "pleasant to flies,"
Sȳul dowree, the gower's shoulder,
Kattia mara, rats and peacocks,
Sarjum hattoo, village of Saul trees,
Kadulsookwa, { "pleasant in plantains,"

Names of Rivers, Hills, &c.

Hackoo yámdah, the water of weeping fish,
Roro garra, roaring river,
Oéko atta dah, bird-lime water,
Toongi garra, the clear river,
Sompa serra, hill of arrows,
Sereng serra, hill of rocks,
Abooroo, hill of the wild pea.
Charree booroo, hill of butcher birds,
Mara billee, pea-hen's egg hill,
Ooree manda, bullock's track hill,
Hâm booroo, the old hill,
Toopooing pee, the plain of battle,
Saél poét booroo, hill of the shot gower,

Names of Persons.

Potam, a wood pigeon,
Loké Damoo, lame Damoo,
Jeetoo Mangta, little baby Mangta,
Sooree Lenga, blind Lenga,
Dildil, corpulent,
Madkum, mowhooa tree.
Ooroo, a beetle,

Dialogues.

What is your name?	Umma chikan noomoo?
Mine? Markundo.	Eenga chee? Markundo.
Of what clan are you?	Chikan keelee oum?
I am a Poortee.	Poortee neegé.
Where do you live?	Okoré minna mia?
In Goomwa.	Goomwa ré.
Where do you come from?	Okomanna té um hooilena?
From Ramila, which is in Keonjur.	Ramila té eeng hooilena; Keonjree ré Ramila.
Where are you going to?	Okoté um seno tanna?
I am going to Seryekela.	Saïr té eeng sèna.
What business have you come on?	Chikan kajee réum hoojooèna.
Some dispute about land.	Otéá épésèr minna.
Where is your house?	Umma oádo okorea?
In Ramila, I tell you.	Ramila ré, metamtannying.
Is your house far from hence?	Umma oá niaité sanging achee?
Very far! It is across the Byturnee,	Essoo sanging honang! Byturnee garra parrum.

What is your trade, or calling?	Chikan pȳtee té um assoolotanna.
I sow (am a ryut,) Sir.	Hertannȳing, gōmké!
What is your father's name?	Appoo'm̃ do chikan noomoo?
He is dead.	Goien áï!
Yes, but did you not call him by some name when alive?	Eyá, mendo áïo jeedakauré kaché'pé noomootadaï?
We called him Harree, but I tell you he is dead, Sir!	Harree'lé metá: goiénaï, gomké! metam!
Are you married?	Andeekiddum?
No; I will marry by and bye.	Bannoá; owré engandeea.
Is your house finished?	Umma oá do sekiena chee?
Have you brought any grass?	Sȳoo um ōwlidda chee?
Yes, I have brought some.	Eyá, owliddȳing.
Have you cut any trees for me?	Aïng nangenté daroo gingkiddum?
I'll fell some to-morrow.	Gappa eeng geengia.
I do not understand you.	Umma kajee do ka'ing etoitanna.
I do not know.	Ka'ing adana.
Call an interpreter.	Mar, sooansee kewȳmén.
Put it on the ground.	Oté ré doimén.
Work quickly; do not be lazy.	Buddee pȳteepe, hé! Aluppé gareena.
Do not go away now.	Nádo alum seneá.
Wait a little.	Angaleka gareemén.
Throw it away.	Enado hoodmaendamén (or simply) endamén!
Let it go.	A ty mén.
Do not let it go.	Alum âyá.
Hold it.	Sabakanmén.
This is not good.	Niá do ka boogeea.
Make it again.	Bȳ rooȳmén.
Take care!	Boogeeté, hé!
Get out of the way.	Hora ankira mén.
Stand aside.	Ochor en mén.
Open it, I will see.	Ráï mén, nel jōmȳng.
Shut it, or it will escape out.	Handit áï mén, bandredo neeraï.
Cover it.	Haroop táï mén.
Go on before.	Aïrte seno mén.

Come along, come along!	Do, do, do, do!
Come, get on.	Do! aïrémén.
No I won't, I am tired.	Ká'ïnga ; lagaiènaing!
What? do you feel ill?	Chia? um hassooiéna?
I feel very ill, Sir.	Essooing hassooièna, Gomké.
Where do you feel pain?	Okotarré hassoo metanna?
I have got a headache.	Bo ré eeng hassooièna.
A thorn has run into my foot.	Kattaré janum bolièna.
When did your father die?	Appoo'm do chooila goyéna?
Ten years ago.	Gel sïrma ièna.
How long have you lived there?	Amdo chimin sïrma endré tȳkenum.
Where did you live before that?	Aïrdo okoiré umtȳkenna.
Why did you leave that place?	Entado chikanminna bagéátoodum.
Why did you run away?	Umdo chikan menté'm nirièna?
I thought they would kill me.	Goïkee'ngiako, menté eengririèna.
Whose bullocks did you steal?	Okoiá ooreeko umkombookenna.
I didn't steal them.	Ka'ing kombookedkoá.
How many cattle were there?	Chemin ooreeko tȳkená.
There were a great many.	Essooko tȳkena.
Did you kill any man?	Midho amba um goïkeeachee?
Did you wound any one?	Okoiamba um gowkedda chee?
I wounded one man with an arrow.	Midho eeng poïtkeea.
I shot twice. ("two shoots,")	Bar mȳl eeng tooingkeea.
How many were you all?	Chemin horo'pé tykena?
There were only two of us.	Alleeng do bar ho soomang.
There were only three of us.	Allé do appé ho tykena.
I was there alone.	Aïng soomang.
Was it dark at that time?	Enbétar do nooba tanachee?
No, it was light.	Bannotora! maskal akanna.
Who seized you?	Okoi sabked mia?
Jurryekussat's son, Mahtee, seized me.	Jurrȳekussatá hon, Mahtee, do, sabkedingia.
Did he bind you?	Tolkedmiáï?
Yes, he bound me with a rope.	Eyá, bȳre té tolkedingiaï.
If I let you go, will you ever shoot at any one again?	Eeng âmièndredo, tȳoomdo okoiamba tarté um tooingiachee?
No, I will not, there!	Banno, ká'ingtooingia, joo!

Lying is not proper.	Labbakajee do káï boogeea.
Killing any one is not proper.	Okoido goitatabdo ka boogeea.
If you kill another man, you will be hung.	Etáho goikendredo, um fansee namoa.
If you threaten or annoy him, you will be put in prison.	Aïdo eranglérédo, chee boroeeree lérédo, endredo koid o'um.
Bring him to me to-morrow morning.	Ineedo gappa setá eengtáté awimén.
Do not beat him, but do not let him go.	Ineedo alum rooia, mendo alum sénécheea.
If he will not come, bind him and bring him along.	Ineedo káïhoojooredo, tolkété agweemén.
Do not give him anything.	Ineedo chikanna alum emáyá.
Show me.	Nelécheeing mén.
Have you found it ?	Námleea chee'm ?
Oh, go and seek it properly.	Joo, boogeeté nam bȳ mén.
Do it again.	Enka rooȳ mén.
I fancy you are a lazy man.	Umdo gareeho honang.
You do not speak truth.	Umdo saree ka jee do ka oodoobtanna. Deeta té kaum oodoobtanna.
Take care, you will tumble down.	Boogeeté ! enda gojoum.
Call him, call loud.	Yewȳmén. Pooraté yewȳ mén.
Tell him to show the way.	Hora aïromén, metȳmén.
I want it as long as this.	Neminang jilling bâé.
Longer than this.	Niaité ōndo jilling.
Take it away.	Eedeeȳ mén.
What is the price of this goat ?	Neemeromá cheminang gōnōm.
Two rupees.	Bar taka.
You ask a very dear price.	Essoo um gōnōmtanna.
No ; it's a very large goat.	Bannoa ; essoo marang mérōmáï.
I will only give you one rupee.	Meetaka soomang eeng èmama.
No, I won't take it.	Banno ; ká'ïnga, k'áïnga !
How many fowls will you sell for a rupee ?	Meetaka ré chemin seemko um akaringa ?
Twenty fowls for a rupee.	Meetaka ré hissee seemko.
Well ; but give me good fat ones.	Mar ! men do boogee rota seemko emaïngmén.

Hullo Sir; will you buy this young monkey?	Hé gōmké; nee gȳe hōm umkeereengia?
Why; what do I want with a young monkey?	Chia? gȳe hōuté ch'eeng chikȳa.
Oh, there was a Sahib here, used to buy them, once.	Ké! moonooá gōmkédo kïringkedkoá honang.
That's why I asked you.	Enaré eeng koolikedmia.
I want none of your wild beasts, but bring me fowls, goats, cows, eggs, rice, straw, wood.	Enleka beer jattee do kȳngá, men do seemko, meromko, pétako, seembilleeko, chowlee, boosoo, san eengtar té agweemén.
What have you got for sale?	Chikan um akaringia?
A very large rattlesnake, Sir.	Essoo marang pogo jarra beeng, gomké.
Take it away; take it away!	Mar, eedeeȳ men, k'aïnga!
Never let that boy come here again.	Enkoádo ondo missa aluppé.
Deuce take him! (let tiger bite him.)	Hoojoocheea Koola káï háb!
I want to sleep.	Eeng do eeng geeteea.
I can't sleep, you make such a noise.	K'aïng geeteedȳa; essoo'pé kakala.
Do not talk loud.	Pooráté aluppé kajeeá.
What do you want?	Chikanum asseea?
I am a poor beggar, Sir.	Koïtannaïng, gomké!
Do not drink more, you will be tipsy.	Ondo do alum noonoá; booloo ōum torá.

Out of doors.—Shooting &c. &c.

Come along, come along, let 's go a hunting.	Dé, dé, dé, dé, sangaraboo!
Let 's all come along!	Do laboo hé!
Let 's go to Dugra hill.	Dugra booroo té' boo sēná.
There are plenty of bears there, and peafowl, and chicquera deer.	Nendredo essoo bannako minna; ondo marako, ondo oréko minna.
Do you all scour the hill.	Appédo booroo parrumté sangar aweepé.

We will stop the ghâts.	Allédo gáttee kesedkoá.
There 's a bear coming, Sir.	Báloo dára, gomké.
Dubro has shot him in the back with an arrow.	Dubro mee mȳl doia parre poit keeaï.
This way, this way, he is crossing over.	Niparté, niparté ! parrumoaï.
He 's hit ! he has tumbled into the ravine.	Tōyenáï ! Hooang ré enda goiènaï.
It 's a she bear ; there are two cubs.	Enga baloo dérang. Bar hōnking minna.
Hullo Sir, I 've shot a peacock.	Hȳ gomke ! mara eeng poit goikeea.
Are there any deer in this jungle ?	Nee beer ré beerjeelooko minnachee ?
There are, Sir.	Minna koá, gomké.
None now ; we made such a noise, they must be all off.	Bankoá nádo ; essoo'lé sarrièna nïriènako honang !
Well ; let 's try a little.	Mar ! nel namaboo.
Don't kill the bear's cubs ; I will rear them.	En baloo hōnko aluppé goikeea assoolkoaïng.
There was a tiger on Toongbooroo, last night. I heard him roaring.	Enang needa Toongbooroo ré koola tȳkennáï, eeng áï rátanaï aioomadaing.
I think we shall get nothing here.	Eeng adatannaing, nendré chikani o ka namoá.
What do you think ? What is your advice ?	Um chikanum héatingtanna, umma sianré chikana'm kajeea ?
Which is the way to Cherye ?	Oko hora Cheryeté senteá do ?
Why, this is a very high hill.	Essoo marang booroonee géderang !
The trees are all in flower, and the water, is deep and clear.	Sabee darooko bahtanna, ondo nádo dah o ikeera, ondo toongé toongea.
What ? is this the Kurkye ?	Chia ? niado Kurkye garra cheè ?
Of course ; What else ?	Eyá andō ?
The water is running very fast.	Dah do essoo harritanna.
Are there alligators here ?	Nendré do tȳnl ko minna chee ?
None now ; there are in the rains, certainly, but you can't see them.	Bankoá nimïr do ; gammadin ré minna do minna, mendo kako neloá.
Are there any fish ?	Hakoo ko namoá chee ?

Plenty of them.	Essoo ko á.
We net them once a year.	Sïrma mootid allé jallum kotanna.
The large fish swim deep, and lie under the big stones.	Marang marang hakoo ko ikïr dá ré ko tȳena, ondo marang dirree latarré oogoorookoonako.
Where are you two off to?	Okoté' bená?
We (two) are very tired, and are going home.	Essoo'ling lagièna. Oáté'ling rooá.
I am very thirsty; where shall we find water?	Essoo'ing tetangièna, okoréboo dah namoá.
This spring is dry.	Nee seting sood do hanjetièna.
Eat some mangoes.	Oolee ko jōmmén.
This is very sweet.	Nia do essoo Sibillá.
Let's all return home; it is getting late.	Oa té rooá' boo; aioobièna.
It has been very hot to-day.	Tising do essoo jétéièna.
I want to bathe.	Eeng oranȳing.
We all bathe here, under the tree.	Sabee hokoallé nee daroo soobaré gé réanna.
Don't go in here, somebody has been washing clothes.	Nendré do alum boloa, okoi do Ijjia eet kidkeea.
Sikhoor swims very well, but Harree dives better than he.	Sikhoor essoo oiar etoána, men do Harree áï táïte essoo boogee oonoom etoána.
How far is it from hence to Chȳebassa.	Niaité Chȳebassa sentea do chemin sanging a'chee?
About three coss.	Appé gowdee leká.

Weather, &c.

It is very cold to day.	Tising do essoo rabangá.
It is blowing hard.	Hoio do essoo dárá.
There is dew on the ground.	Oté ré saparoom dah minna.
It has'nt rained one day, for two months.	Bar chandoo ièna moosing do ka gammakidda.
It is raining over Charree hill.	Charree booroo chattan ré gamma tanna.

Ooreemanda is hid in clouds.	Ooreemanda booroo do reemeel ré danang ièna.
It is getting cloudy, and blows hard.	Reemeel hobowtanna, hoio essoo.
I hear the thunder : it will certainly rain to-day.	Dárá : reemeel saree aïng áïoomtanna, tee sing bâtchiad gamȳa.
There is no moon, but the stars are shining.	Chandoo do bannoá, mendo eepilko jooltanna.
It is very hot (from closeness, in distinction to sunshine or fire.)	Essoo balbala minna.
It froze last night ; there was frost on the ground this morning.	Enang needa jaké ratankiddaï, teesing seta *ogé* doomboo ré ratang dah minna kanna.
I am wet through.	Essoo eeng loomièna.

With a Prisoner, &c.

Did you steal Sangee's money ?	Sangee a taka um kombookenna chee ?
No, I never stole it.	Banno ; k'aïng kombookidda.
Did you enter his house last night.	Enang needa áïa oáté um boloiena chee ?
Yes, I went to ask for tobacco.	Eyá boloienáïng, sookool eeng asseea, menté.
Did you kill your son Kapore ?	Umdo amma hon Kapore goikeea chee ?
Yes, I killed him.	Eyá, goikiddáïng.
For what fault did you kill him ?	Chikan cheera ré um goikeeáïa ?
He never committed any fault.	Missa do k'aï cheerakidda.
We were both starving.	Rengé' leeng gojotanna.
I had nothing to give him to eat.	Jometeá do ján jeta do k'aïng emaï dya.
He cried, and looked in my face.	Rákiddaï, eean medre nelkidaï.
He was weak, and laid down on the ground.	Pé do ka tȳkidda, entenado otéré geetee enáï

He lay down in the jungle and could not rise again.	En beer ré geetee enaï, ondo k'aï tingoo rooȳ dȳa.
Night was coming on, and I heard the tiger roaring.	Needa hendiènte, koola o rátanna aioomadáïng.
And I thought he would seize you, my poor boy, if I left you.	Enkoola do jeedakanre habmiai torá, eeng bagee endredo, menté adakiddaïng, koá !
And so I killed you !	Entenádo. Goikedmiaïng !
I then buried him in a ravine,	Enté do hooang ré eeng topotadȳa.
Lest the wild beasts devour him.	Beer jeeloo do kako jomaï, menté.
I went away slowly, for I was weak and ill.	Maité eeng seniena, jan pé o bannoá, essoo eeng hassooièna.
And when I had got further into the forest, I thought I heard him call.	Ondo nádo en beer ré bolokedté, iewaïng tannaï, adakidaïng.
And then I fainted away.	Enté nado eeng goyenaïng.
But he calls me now every day.	Mendo nádo dimsee aï kewaing tana.
In the morning, and noon, and night I hear him call, Father, oh father !	Setta ré, singee ré, needa ré kewawing tannaï, Appooing, appooing, hey appooing !
So I cannot eat, I cannot work, I cannot laugh, I can live no more !	Enté k'aing jōmdȳa, k'aing pȳtee dȳa, k'aing landa dȳa, jeed do k'aïng jeed dȳa, ná do !
So hang me, Sir ; kill me quick, and this wretchedness is over !*	Mar, fansee emáïng mén, mar, buddee té goikeeing mén, gomké enté chabiena nee gé !*
It was a very dark night, and Serám tumbled into the well.	Essoo marang hendé needa tȳkidda, Seerám chooáré iew kanjooienaï.
We called him, but he gave no answer.	Allé essoo'lé iewkeea, k'aï gōnga.
When they brought a light, we found he was dead.	Enté sengel owliddako, maskal kidallé, enté'lé nelkeea, goia kannaï.

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* The above is taken almost verbatim from the confession of a Ho prisoner, who delivered himself up after the murder of his son in the woods of Ooisooia in Kotegurhpur, 1837-38.

I shall begin to-morrow. Bindrye commenced yesterday.	Gapá eeng èteá. Bindrye hola é onkooroo kidda.

Examples of the Imperative Mood, Future tense, &c.

You sing a song, and he will play the flute, all the girls will dance.	Umdoorangémén, áïdo rootoo orangiaï, ondo sabin erakosoosoon ako.
Never steal, never take what is not your's.	Já emindreo alum kombooia, okoá ammabeetee bannoa, enádo alum eedeea.
Never covet another man's goods.	Já emindréo etá hoá beetee ré alum malloá
Do to others as you would that others should do to you. This is the great secret of well-doing.	Umchileka sabeehoko taïté boogee umnamtanna, eulèka sabee hoko umboogeekomén. Sabee boogeeoteá nerégé minna.
Never take God's name in vain.	Sing Bonga á noomoon landa bakaré alum doia.
Do not let them go to the river.	Garra par té alo kako sèn *or* alum seneecheekoá.
Go quietly, and peep over the wall, see what he is doing.	Maïté senketé, genil ré sangil nelleemén chikanaï chikatanna.
Hear me well.	Boogeeté aioomingpé.
Ask me what you wish to know.	Chikana'pé kôoleea, enao kooleeing'pé.
I speak for your good.	Appea boogee nangenté kajee-pé tannáing.
I will not deceive you.	K'aïng chakad pé á.
Others have deceived you.	Adông do chakad'pé kidda.
Do not believe in false gods; there is but one God.	Sama Bongako aluppé mannating koá; bonga do miad soomang minna.
My God is your God.	Eenga Bonga, enao appea Bonga.
What you say, he hears.	Chikana'pé kajeea, enao aioom oäï.
Whatever you do, he sees.	Chikana'pé chikȳa, enao nelláï.

From his eyes you cannot hide.	Aïamèdté appé do ka ookoodȳa.
In trouble, he will deliver you.	Appé mundookien dredo, bunchiba'piáï.
In fear, he will preserve you.	Appé boroiendredo, do'péaï
Without him, you will perish.	Aï k'aï tȳnredo, gojoápé.
With him, fear nothing.	Aï tȳnredo, ján aluppé borȳa.
Believe in him, and he will give you all things.	Sareeȳpé, sabin áï ema'peá.
He made you and can destroy you.	Bȳked'peaï, goikeepédȳa.
Keep him in your hearts.	Jeeré do aïpé.
Never forsake him.	Aluppé bagaï'pé.
I leave you ; but remember my words.	Bagé' pétannaïng ; mendo eenga kajee heating pé.
Fare you well.	Boogee té tȳn'pé.

Translations of Ho songs, &c. I have omitted. The Vocabulary having grown more voluminous than I had anticipated

S. R. T.

A short account of Khyrpoor and the Fortress of Bukur, in North Sind. By Captain G. E. Westmacott, *37th Regt. Bengal N. I.*

The recent achievements of the British Army in Sind and Kabul have advanced our frontier to the Indus, and placed in our hands the fortress of Bukur and the town of Sukhur in Khyrpoor, places of the first importance, as they command the navigation of one of the finest rivers in the world; the route by which an army can threaten our territories from the north, and the productions of Persia and Central Asia are transported to Western India and the ocean.

During a residence at Sukhur, in the summer of 1839, I obtained some information about the country adjacent, which I have the pleasure to lay before the Asiatic Society, in the hope, as little has yet been published about Upper Sind, that it will be acceptable. The Government were jealous of their subjects mixing with the British, and narrowed the circle of my inquiries. I did not visit the interior of the country, and the information is defective on points I had wished to elucidate, but it will be found, I believe, tolerably correct.

It is difficult to define the extent of territory belonging to the prince of Khyrpoor, because intermixed with that of Hydurabad, but I shall describe first his possessions east of the Indus, and afterwards those on the west bank of the river.

The territory east of the river is included within the parallel of Lat. 26° 50′ and 28° 50′ N., and Lon. 68° and 70° E. It is bounded on the north by the independent chiefship of Daodpootra; on the south by the possessions of the Ameers of Hydurabad; on the west by the Indus; and on the east by the Rajpoot principality of Jeysulmeer. Its extreme length, measured from the Daodpootra frontier southward, is 100 kos,* or about 120 English miles; and its breadth from east to west nearly the same.

Two-thirds of the district attached to the petty fort of Subzulkot in north Khyrpoor belong to Noor Moohummud, the senior Ameer of Hydurabad, and the remaining third to Meer Roostum of Khyrpoor. They nominate their own governors and divide the revenues. Subzulkot is on the route travelled by caravans from Kabul, the Punjab, and Northern India, which pass through Buhawulpoor to Sind; and duties are levied at the custom-house on transit merchandise.

The purgunnah of Shikarpoor is often called Moghulee, from having been peopled in the time of the Dooranee kings by Puthans and Moghuls from Afghanistan. It lies near the northern limit of Sind, on the west bank of the Indus, and the revenues and expences are divided into five shares, three of which belong to Noor Moohummud and Nuseer Khan, the senior Ameers of Hydurabad, and the remainder to Meer Roostum and his brothers. It extends north-west to Rojhan in the province of Kuchee, about twenty-five miles beyond the city of Shikarpoor, on the road to Kandahar. Southward it reaches within about sixteen miles of Larkhanu in the purgunnah of Chandkoh in Lower Sind, and has the Indus on the east. This district was invaded several times by the Talpoorees prior to 1810, when Meer Sohrab Khan, the father of the reigning Ameer of Khyrpoor, seized upon Sukhur, and twelve years later wrested the whole of Shikarpoor from the royal family of Kabul, and annexed it permanently to Sind.

North of Shikarpoor and west of the Indus, Meer Roostum holds the districts of Boordgah and Keen, inhabited by tribes of Boordees and Kuchees, who are poor, idle, addicted to plunder, and under imperfect subjection. Boordgah is celebrated for its pastures, which nourish the finest cattle, goats and sheep, of any district under this government. It produces a good description of wool and wheat, joowaree, cotton, and plenty of sakur, a red dye obtained from the flowers of tamarisk, which grow on the banks of the Indus.

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* The Khyrpoor kos is 1¼ or 1½ English mile. The people call it fifty kos from Bukur to the fort of Shahgurh in the desert, on the confines of Jesulmeer, and the same from Shahgurh to the city of Jesulmeer, and accomplish the whole distance in ten days. Subzulkot is forty kos from Bukur, or three days' journey for a horseman, and four for a pedestrian.

The country on the east bank of the Indus south of Daodpootra, including Khyrpoor and the space below it, as far as the 26th parallel of latitude, is called Surae, which means north in the language of Beloochistan, and that on the opposite bank from Boordgah southward to the purgunnah of Chandkoh, is called Moghulee. North Khyrpoor, comprising Oobara on the Indus, and the space eastward to the Jeysulmeer boundary, was called formerly Umeer Wuhun, and seems to have belonged in the end of the 7th century of the Hijru, to Nusrut Khan, Sooltan of Mooltan, who bestowed it as a dowry on his daughter on her union with Budr Deen, grandson of Moohummed Mukaee, the venerated founder of Bukur.

Khyrpoor is lotted into shares among the brothers of the Talpoor family, who subdivide them into portions for their sons, nephews, and relations; these are mixed with much confusion, and the same individual holds lands in five or six different places. Meer Roostum, who occupies the *musnud*, has a great deal the largest portion, but allows his brothers to govern their districts and dispose of the revenues as they choose. Their lands usually descend from father to son, but all acknowledge Meer Roostum as the lord paramount, and assist him with troops in time of war. On the birth of a male child in the prince's family, he allots a portion of the royal lands for his maintenance.

Some of the districts into which Khyrpoor is divided are extremely small, and named after their chief towns. In general the inhabited spots distant from the Indus, are scattered wide, and people call every place a town which has forty or fifty houses.

The districts are as follow—

Beong, } Under Meer Roostum.
Bara, }

Subzulkot—Meers Noor Moohummed and Roostum.

Raotee—Ulee Ukbur.

Meerpoor, } Nuseer Khan.
Ghetkee, }

Roree, including the ancient city of Alore—Meer Roostum, Ulee Ukbur, and Ulee Morad.

Khyrpoor, or Gagree—Meers Roostum and Ulee Morad.

Dijeekot—Meer Ulee Morad.

Raneepoor.

Halanee.

Ludba, } Meer Roostum, Nuseer Khan, and Ulee Morad.
Gagun, }
Mathelo—Meer Roostum.
Futtihabad.

The principal divisions of Moghulee are—

Shikarpoor, }
Jutvee, } Nuseer Khan.
Sukhur, }
Noushuhra—Moohummud Husun.
Roopa—Meer Roostum.
Durbelo—Ulee Morad.
Goonjaba, } Meers Roostum, Nuseer Khan, and Ulee Morad.
Futtihpoor, }

The reigning family is a branch of the Talpoor tribe, which came originally from Shahzadpoor on the mountains of Kuchee, the most easterly province of Beloochistan. Other writers have given an account of them, and I shall merely state that their ancestor Byram Khan was minister of state under Mirjan Surfuraz Khan Kalhora, by whom he was cruelly slain with his son Sobdar about the year 1775. His death produced violent disturbances in Sind, for he possessed extensive influence with his tribe, and the people of the country. In 1781 Bejur, another son of Byram Khan, shared his fate by order of Mirjan Abdool Nubbee, uncle of Surfuraz Khan, which exasperating the Talpoorees, they rose in a body, and having dethroned the tyrant, raised Futtih Ulee, the grandson of Byram and chief of their tribe, to the government, which has continued ever since in the possession of his family. This revolution occurred about fifty years ago, in the reign of Timour Shah of Kabul, to whom Sind was then tributary. He had endeavoured in the commencement of the struggle to restore the Kalhoras, but was not latterly in a situation to assist them, and formally invested the Talpoorees with the government.

Meer Chakur Khan, the grandfather of the reigning prince, was the first of his race who obtained authority in Khyrpoor. He went blind from age, and was succeeded on his death by his son Sohrab Khan, who died also at an advanced age in 1830, and left five sons:

Meer Roostum Khan, who succeeded him.
Meer Ghoolam Hydur, (deceased.)
Meer Moobaruk Khan, (deceased.)
Meer Chakur Khan.

By another marriage:

Meer Ulee Morad.

Meer Roostum has issue seven sons:

Moohummud Husun.
Ulee Ukbur.
Mooreed Hydur, (dumb.)
Ulee Murdan.
Sher Moohummud.
Ullah Buksh.
Ghoolam Moohummud.

Meer Ghoolam Hydur left issue:

Moohummud Khan.
Uhmud Khan.
Moostufa Khan.

Meer Moobaruk died in 1839, and left issue five sons:

Meer Naseer Khan, who succeeded to his father's possessions.
Moohummud Ulee.
Fuzl Moohummud.

By another marriage:

Ulee Moohummud.
Wulee Moohummud.

Meer Chakur Khan has one or two sons, whose names I did not learn.

Meer Ulee Morad has issue three sons:

Kuka.
Sohrab.
Ghoolam Hoosyn, born 1839.

Nearly all the royal family dwell in the capital. The prince's residence is too insignificant to be called a palace, and has no appearance of splendour or magnificence. The habits and manners of the court have the character more of a nomade horde, than a settled government. Little etiquette is observed. The armed retainers of Meer Roostum crowd rudely into his presence, and though he is frank and affable, most of his followers are deficient not only in courtly polish, but the common forms of good breeding.

From the proximity of Sind to Northern India, and the easy means of communicating with that country by the Indus, it is strange that people have borrowed none of the comforts and luxuries of their neighbours. Sind was governed several hundred years by viceroys of the Moghul empire, and has maintained an intercourse with Delhi since the invasion of Moohummud Ghoree, in the end of the fourth century of our era. The arts and manufactures are notwithstanding in a barbarous state, and with exception of the silk fabrics of Thatta, exhibit no mark of good taste. The carpenter unites the profession of bricklayer, and is ignorant of the use of the line and plummet. The smith can neither turn a hinge, nor fashion a screw. The hills produce excellent lime, which is turned to no account, and the public edifices which are at all remarkable, were built by foreign workmen, or at least under the superintendence of foreigners.*

The houses of the better class in towns, are often on a par externally with the cotter's hut of India, and equally deficient in accommodation within. While such is the state of the arts in towns, it is not surprising to find the peasant ignorant of the common mode of thatching and building, and though the banks of the Indus are clothed with grass, he covers his dwelling with tamarisk boughs put together without order or arrangement.

The princes keep large packs of dogs, of a powerful and ferocious breed peculiar to Sind, and pass much time chasing the boar in the preserves and tamarisk woods near the Indus. They hunt on the battu system, and sit in houses thatched with reeds, elevated many feet above the ground, in openings of the jungle, and shoot the game which are driven through the avenues by beaters and dogs. The Shikargah, or hunting preserves, are surrounded, like those in lower Sind, with hurdles, thornwood, and reeds, woven into a fence twelve feet high, and contain tigers, boars, wolves, porcupines, hog-deer, jackals, hares, and foxes. Some of the most fertile lands in Khyrpoor are reserved for this pastime, and overrun with accacia, tamarisk, and underwood, which the people are prohibited cutting under a severe penalty. Sometimes a multitude of peasants armed with sticks and clubs are mixed with matchlock men, and surround the hunting thickets, and by narrowing the circle, drive the wild beasts towards the Ameers, who dispatch them with long and heavy barrel guns with flint locks. The villagers are gathered together to assist in these expeditions, and view them with fear and alarm. They are often injured by gun-shots and the attacks of wild animals, and rarely paid for their labour. Sometimes they receive a small allowance of food, which is taken from the grain-seller at a fourth less than the market rate, and bankers support the chase with loans forced from them, and paid by an order on the revenue. They are left to settle with the land owners the best way they can; they have infinite trouble to collect their due, and never realize it in full.

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* The great mosque at Thatta was built by a viceroy of Ourungzeeb, and is perhaps the finest public edifice in Sind, but far inferior in beauty to the same class of buildings in Northern India. The great mosque at Roree was founded in the end of the tenth century of the Hijru, by a Lieutenant of Ukbur. The minaret of Meer Masoom at Sukhur, was raised about the same period, and is a heavy, ill-proportioned column, without ornament. The carving of a few tombs of Kalhora and Talpooree chiefs at Thatta and Hydurabad is worth examination, but the architecture is deficient in lightness and elegance.

The princes besides keeping dogs, wear their hair long, drink wine, and indulge in other practices forbidden to Moosulmans. They easily acquired a taste for the delicacies of Europe, and sent to the British bazar at Sukhur for Maraschino, Curaçoa, and Cherry brandy, which they pronounced deficient in strength, but superior in flavour to the fermented liquor prepared from the date. Among the articles they purchased, were telescopes, knives and forks, and white and coloured earthenware. Like their relatives of Hydurabad, they have adopted the doctrines of the Sheeas; though the largest portion of their subjects, both Belooch and Sindees, profess Sooneeism, which is the prevailing doctrine in Beloochistan, where a bitter feeling exists against the followers of Ulee. Though anxious to make converts whenever a pretext offers, they do not persecute the Hindoos for their faith, and I did not hear of their suffering cruelty and insult on that account. The Hindoo carefully avoids giving offence, and though not permitted to build temples and exercise his religion openly within the walls of towns, has usually a small place of worship in the suburbs; but he is forbidden to use music and bells, to blow the shell and fashion idols, and a little red paint alone indicates the situation of his gods.* The Hindoos visit the shrines of saints, and other places of Moosulman pilgrimage, which they have endowed with a sacred character. The Bhattees and Arores form the great body of Hindoos in Khyrpoor. The latter are the trading class, and nearly resemble in feature their brethren of Western India, from whence they originally emigrated, but are more neglectful of their dress and persons, and lax in the observance of their faith. They eat and drink of forbidden things, partake of food that has been touched by Moosulmans, and smoke from their pipes, and are held, consequently, in disrepute by the pure Hindoo of Muthoora and Bunarus. Only very poor Moosulmans ride upon donkeys; but they are kept commonly by Brahmuns and wealthy Hindoo merchants and bankers, who do not consider it a disgrace to mount an ass, while it is, on the contrary, regarded by a Moosulman as degrading. It is hardly necessary to state that the Hindoo of India cannot touch an ass without being defiled: to mount him upon one is to degrade him. The ass is introduced in Sind into marriage processions, and carries the bride and bridegroom. A great many Bhattees enter the service of government, and fill some of the most important and trust-worthy offices. They are treated with respect and consideration, but obliged, as the price of servitude, to conceal their caste, to wear beards, and adopt the dress and manners of their rulers. They fasten the collar of their *chola*, or shirt, on the left instead of the right side, which is the only difference in the costume of the rival sects. The mechanical arts and manufactures are conducted entirely by Moosulmans; but shopkeepers, and by far the greater part of the mercantile class are Hindoos, and cordially detest the Belooch. They are frugal, temperate, and industrious; their thoughts are directed exclusively to the acquisition of wealth, and I am inclined to think the exactions of their rulers not quite so burthensome as they represent. They are a great deal the richest members of the community, and contribute largely to the revenues of the country. Meer Roostum, it is said, makes scarcely any distinction between his Hindoo and Moosulman subjects, and is in this respect more tolerant than his father Sohrab Khan, who sought opportunities to convert them to Islam. During his reign, if a Hindoo was heard to speak lightly of the Moosulman creed, or to deny his own faith in jest, he was immediately circumcised. The law forbidding the Hindoo to exercise his religion should be abrogated; but in censuring the Talpoorees, we must not forget how recently the Jew was persecuted in the most civilized states of Europe, and that in the Punjab, and some Hindoo cities of western India, the Moosulman is not permitted to build mosques and call his brethren to prayer.

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* At Shikarpoor, there are many wealthy Hindoos, who have a Takoor Dwara (Temple to Vishnoo,) and three temples to Mahadeo beyond the town walls. They have idols, *Artee* and *Sunkh,* and practice the observances of their faith unmolested. They say the privilege was obtained by a celebrated *Sadh,* who astonished the Moosulmans by his miracles. When they threatened to circumcise him, he turned their mosques away from Mecca, and his persecutors being alarmed at such conspicuous proof of his power, to get them righted permitted him to erect temples and worship the Deity in his own fashion. Tymoor, the son and successor of Ahmud Shah, first established Hindoos in the town, and the reason of the Ameers treating them with such indulgence, is owing to the benefits they confer on the country by their industry.

The government of Khyrpoor is a military despotism, and if the Ameers persist in their present arbitrary mode of raising revenue, they will shortly reduce the country to a desert. Moosulman and Hindoo are subject equally to extortion, though the last is, from the nature of his vocation, more frequently the sufferer. In their eagerness for wealth, the princes have permitted the forts and public works that rose under former rulers to fall into ruin, and trade and manufactures languish. The few who have wealth carefully conceal it, and assume an exterior of penury, to escape extortion. An irregular cess is levied from grain-dealers and shopkeepers, according to the means each is supposed to have of paying, and they are confined in the stocks and flogged if they withhold their quota. A sum varying from two to thirty rupees a shop was extorted in October 1839 from the grain-dealers at Sukhur, not a mile from the British camp. Before the arrival of our troops the dealers never exposed a quantity of grain on their counters, for fear it should be seized or plundered by the armed followers of the prince. They conducted business in a small dark chamber behind their shops, but had latterly carried on their transactions openly, and were disappointed and alarmed when they found our civil and military officers were not authorised to protect them. Espionage is carried to an extraordinary length. The officers of the prince inform him when a merchant makes a successful speculation, and a mechanic a superior article, and he demands a share of their profits, which is regulated by no law, but by his own absolute will. The manufacturer is careless about improving his fabrics, from the little benefit he derives from his ingenuity. There are persons in every community who basely earn a livelihood by informing against their fellow citizens, and to this class the sovereign looks for information. Neighbour is against neighbour, and social intercourse destroyed, and each fears his associate will employ the knowledge he obtains of his affairs for some bad purpose. Under such a system it is not surprising that Sind exhibits the shadow of its former prosperity—that the revenues are decreasing, and yield a tithe of what an enlightened government would obtain from them. The advantage conferred by the Indus as a medium of communication with the ocean and Northern India and Central Asia is sacrificed. The skilful artificer departs to regions under a milder administration, where he reaps the profits of his industry. Useful arts are lost, and I witnessed the departure of weavers, dyers, and other industrious classes from their native towns, to escape the exactions of the governors. Many have relinquished trade, and prefer to live quietly on a little, than to amass a fortune which might tempt the cupidity of the government. The people are not inferior to their neighbours in talent, but it cannot develop itself under a withering despotism. Even the upper ranks are sunk in ignorance, and possess neither the mental acquirements, nor the polished manners of the Moosulman of India.

The laws are founded on the Koran, but corruptly administered, and an offender escapes punishment by bribing the judge. The poor have little chance of redress when their oppressor is a Suyud, or nobleman of the military class. Fines are levied on trifling pretexts, and whenever it is possible, the Hindoos settle their quarrels without an appeal to the governor, who, if a rigid Moosulman sometimes condemns one or both to circumcision. In general the punishments are not severe; life is seldom forfeited, and the principal Ameers alone exercise the power of life and death.

The revenue of the territory under the Ameers of Khyrpoor, including the purgunnah of Moghulee, Boordgah, and Keen, is computed at twelve lacks of rupees, of which Khyrpoor yields perhaps eight lacks. The Ameers obtain part of their land revenue from the farmer in grain, and part in money, regulated by the nature of the soil, and its proximity to water. The rate is usually a third and fourth of the produce of wet land, and a fifth of irrigated land. They frequently alter the amount of the cess in kind in *Moghulee*, from caprice rather than the failure or productiveness of the crops ; this was not usual with the Moghul and Afghan sovereigns.

Land in Khyrpoor is classed under three heads,—*Bosee* or *Belo,*[*] *Puko* or *Pirjain,*[†] and *Nohur*. The Bosee lies on the banks of rivers and canals, or it is flooded annually by the Indus, and requires no aid from the water wheel. The Puko is at a distance from water, and requires to be irrigated. Nohur, or waste land, is taxed at different rates, according to the obstacles it presents to agriculture. In the district of Rosee, Meer Roostum takes one-fifth of the produce the first year, and levies the full cess the season following. Meer Mooreed Hydur, who has a manor in the same district, taxes waste land the first year it is tilled one rupee the jureb, the second year two rupees, and so on, increasing one rupee yearly till the assessment reaches its maximum. In parts of Khyrpoor where there is an uncertain supply of water, crops are valued when ripe by a government officer, who levies according to the productiveness of the harvest. The landholder sometimes gathers the crops without the officer, but if he removes a sheaf before the prince has taken his portion, he is fined double the amount of his assessment. The value of land is extremely low. Wet land in the district of Sukhur is worth seven and eight rupees a jureb, and dry land four and five rupees. A landholder of my acquaintance paid 300 rupees, eight years ago, for thirty jurebs of land, but it is worth more than the average, from its proximity to the Indus, and town of Sukhur, where there is a better market for produce than the interior of the country. Garden land on the banks of streams, sells at from twenty to fifty rupees the jureb, according to the number and description of trees it contains. The mango yields the best return. The government, however, leave only a sixteenth of the produce of gardens to the proprietor, and the only fruits exempt from cess, are the Hubsora (Cordia myxa), the Plantain, and Jummo (Eugenia jambos.)

The revenues and town duties are frequently farmed out by the year to *Izardars*, who appoint collectors on a fixed salary, one to every large village, and one to a circle of small ones. In Sukhur the monthly stipend of these functionaries varies from 5 to 30 rupees. The Izardars, or farmers, are either Moosulmans or Hindoos (Bhattees,) and are compelled to fulfil their engagements, and well beaten if they withhold payment. As the settlements are seldom for more than a year, they cannot, like he revenue farmer in some parts of British India, make their profits in a good season cover their loss in a bad one. To the Rueeyuts both systems are the same, and he must pay under all circumstances the full assessment. In Khyrpoor he is often grievously oppressed by the farmer, who thus indemnifies himself for sums extorted by the prince. The prince appoints an officer, called a Darogha, to exercise a surveillance over the Izardar, and examine his accounts. He usually receives a monthly stipend of thirty or forty rupees, and it is through him that the prince ascertains the receipts from a district, and regulates his demands against it the following year.

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[*] Pers. Silabee. [†] Khooshkdako.

Zumeendars hire labourers to till their lands, and let a portion of it to tenants for rent or part of the produce, and they usually receive from their landlord seed and agricultural implements. The lease seldom extends beyond a year, and the Zumeendar, after setting aside a third or a fourth of the crop for government, divides the remainder into four parts, three of which he gives to his tenant. The tenants often pay in kind to the landlord, and he settles with the government in cash. In the district of Syudabad of Moghulee, under Meer Roostum, they pay a third of the crop to government, and a sixteenth to the landlord, but provide seed and agricultural implements, and bear all charges of cultivation. The prince also lets his land to tenants, and relinquishes half the crop to them for the trouble and expense of cultivation. A similar system obtains in a great part of France and Savoy. The Métayer of France pays half the produce to the proprietor as rent. The proprietor supplies the stock, the grain required for the first sowing, as well as for the support of the Métayer and his family until the first harvest. The Métayer works, sows, reaps; and he and his family feed on the produce, after which the proprietor gets the remainder, (see *Revenue Trimestrielle* for April, 1828.) In the lowlands of Savoy the *Granger* (another word for *Métayer*) pays half the produce of his farm to the proprietor, mostly in kind.

There is a great deal of land in Khyrpoor subtracted from the revenues for *jaegeers* to military chiefs and their followers. When the Talpoorees conquered the country, they respected, as Asiatic princes usually do, the *sunnuds*, or title deeds of sovereigns, who preceded them. There are Suyuds, Puthans, and Moghuls in the purgunnah of Moghulee, who have sunnuds granted by Ourungzeeb, Nadir Shah, and the kings of Kabul to their ancestors, for services to the state, in virtue of which they pay only a fourth of the crop and the whole of their *ung* is remitted. Persons of this class without *sunnuds*, pay a half of the crop and half the established *ung*.

Some families of Sindee Zumeendars in Khyrpoor, whose ancestors were converted to Islamism ages ago by the Arabs, hold their estates rent free; a number of Suyuds enjoy the same immunity, and many more receive pensions. Provision is also made for the *Durgah*, and shrines of holy men, which shelter a host of lazy *Moojawurs*, who besides the allowance they derive from government, are otherwise a burthen on the people.

Sales of land are rather frequent, and the law compels a proprietor before he disposes of his estate to a stranger, to signify his intention to his neighbours whose property adjoins. If they all decline to purchase at the price offered by the stranger, the proprietor concludes the bargain, and presents him with a title deed, signed by the neighbours, to prevent any one disputing his claim hereafter.

Grain is trodden from the husk, out of doors, by six and eight oxen abreast, and beaten afterwards with sticks to remove what particles remain in the ear. It is winnowed in small shovel-shaped baskets of *moonj* grass, and removed from the field on carts or boats. The process of agriculture is cheap and slovenly, and two and three kinds of grain, and grain and vegetables, are mixed in the same field. The Ameers let their land to tenants by the year, and it is in a worse state than that of the farmer, who superintends his land himself. Tamarisk stumps half burnt encumber the fields, which are seldom weeded after the grain appears. The cuts from the Indus are narrow, crooked, and carelessly dug, and the earth constantly falls back into the cavities, and the peasant has to do his work again.

Cattle sheds are built of reeds and tamarisk boughs, which are an imperfect protection from the weather. There are no mangers and troughs to receive fodder, which is scattered about, trodden under foot, and much of it wasted.

In the Purgunnah of Moghulee, labourers who cut wheat, gram, sesamum, mustard, &c., receive two *patees*, or *pinkees** daily of the grain they reap, and their labours commence early, and terminate at noon, as it is impossible to work later in summer, from the intense heat. The payment is always in winnowed grain at the end of harvest. Women are not employed to reap corn and sugar-cane. Joowaree and Bajree, are reaped in November, and the labourer works from sunrise till sunset, and earns three *patees* or *pinkees* of grain; a woman only half the quantity. For cutting rice, the remuneration is two or three *pinkees* per diem. For sugar-cane two annas (3*d.*) a day, and five or six *pys* (2½*d.*) for hemp and tobacco; women earn only half the sum. The farmer divides the pea harvest into seven portions, two of which he gives to the reaper. Sometimes the Zumeendar gives servants, permanently in his employ, one-fourth of his share of the crop, which seems a better mode of remuneration than fixed wages, as it closely allies their interest with his own, and they gain and lose in proportion.

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* A Pinkee is rather more than ¾ of a seer, and two Patees equal 1¼ seer.

The Ameers deal extensively in grain, which they horde and bring into the market when a scarcity occurs, either from a failure of the inundations, or the demands of levies in war time. Meer Roostum instead of alleviating the distress of his subjects, and thwarting the combinations of grain merchants, helps to raise the prices, and imitating Moohummud Alee in Egypt, buys up and monopolizes the produce of his country.

The following were the common rates of land assessment in the district of Roree on the north bank of the Indus,* for the harvest year 1250-51 corresponding with A.H. 1255 and A.D. 1839, levied in the Khyrpoor currency.

Rubbee Harvest.

		Rs.	*As.*
Tobacco, ...	*per jureb,*	6	4
Opium, ...	———	6	0
Wheat, ...	———	4	14
Khiyar, Khonbee, or Masfur, ...	———	4	12
Hemp, Cucumbers, Water and Musk Melons, ...	———	4	10
Barley, ...	———	4	0
Ekura or Shumleet, a kind of Spinach, ...	———	3	14
Paluk, a kind of Spinach, Onions, the Egg plant, ...	———	3	12
Keenu or Urzun, a kind of Millet, ...	———	3	4
Surshuf mustard (which is also collected in kind) garlic, cummin, anise and Wadsh or Badiyanu, ...	———	3	0
Surshuf or Sirson, Moong (Phaseolus mungo), Jan or Ujmood, and Pease (Ruwa,) are collected in kind, (bhutaee) at the rate of a third of the produce per jureb of wet land.			

Khureef Harvest.

		Rs.	*As.*
Sugar-cane, ...	*per jureb,*	10	8½
Cotton, ...	———	4	12
Joowara (large maize) carrots, turnips, radishes, Toore, (a kind of cucumber) Eroun, pumpkin, Kurela, a vegetable, (Momordica charantia), and Mehra, another kind of vegetable, ...	———	4	8
The following pay in kind, a third if grown upon land flooded by the Indus, and if irrigated by the wheel, only a fourth.—Rice, Bajra (Holcus spicatus,) Indigo,			

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* The harvest year terminates in the middle of the year of Higra.

Mash, a kind of vetch (Phaseolus max,) Musoor (Ervum lens,) Sesamum, Sure (Panicum italicum,) and Chunna (Cicer arietinum.)

Land revenue of the district of Sukhur, on the south bank of the Indus for A.D. 1839:—

Rubbee Harvest.

		Rs.	*As.*
Tobacco, Hemp, Onions, Cucumbers, ...	*per jureb,*	5	4
Wheat, Joowaree, Cotton, Bajree, Moong, Pease, Gram, Ujwain, Gushneez, Surshuf, and Sesamum, are assessed in kind, at one-fourth of the crop per jureb of wet land.			

Khureef Harvest.

		Rs.	*As.*
Sugar-cane,...	*per jureb,*	9	4
Carrots, ...	———	4	4
Turnips and Radishes, ...	———	3	4

The land revenue is calculated in Khurwars and Kasus, and a Zumeendar on paying the dues to the Kardar, or governor, imprints his signet ring on the officer's book, at the foot of his account, as security against mistakes and imposition hereafter.*

Table of Khyrpoor, or Shuhzadpoor, measures used in Khyrpoor and the purgunnah of Moghulee:—

4 Chouthaee, or 2½ Pa, ...	1 Patee or Patoee.
5 Chouthaee, or 3 Pa and ½ Ana,	1 Pinkee.
4 Patee, or 2½ Seers, ...	1 Toyn.
4 Toyan, or 10 Seers, ...	1 Kasu.
6 Kasu, or 1½ Mun, ...	1 Tokhu.
10 Tokhu, or 15 Muns, ...	1 Khurwar.

Weights and measures used in the districts of Roree and Sukhur, the lesser for precious metals, &c., and the rest for grain, oil, ghee, and other commodities. The small weights vary a trifle in some parts of the country.

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* The entry in the Kardar's book is as follows:—

(Zumeendar's name.)

Wheat, 4 Khurwar.
Government share 2 Khurwar.
Zumeendar's share 2 Khurwar.
Government *ung* 6 Kasu.
Zumeendar's *ung* 1½ Kasu.

8	Ruttee,	1 Mashu.
11½	Mashu,	1 Sohrab, or Kyrpoor rupee.
42	Mashu,	1 Tola.
6	Tolas,	1 Ana.
4	Anas, or Chhutanks,	1 Pa, or 24 rupees.
4	Pa,	1 Seer, or 96 Sohrab rupees.
40	Seers,	1 Mun (pukka.)
15	Muns,	1 Khurwar.
5	Seers,	1 Dhura.
8	Dhura,	1 Mun.

Land is measured by the cubit (Bootu,) Gundha, and Jureb.

5 Cubits make	1 Gundha.
20 Gundha	1 Jureb.

There are three kinds of Jureb. The first is measured by the Shahjuhanee gundha, and about 150 English feet square. The second measured by the Ruyutee gundha (the one in common use) 145 feet square, and the third measured by the Imdadee gundha, only 135 feet.

The Khyrpoor cubit is employed to measure land, and is the same length as that of India, or about 18 inches; it is measured from the point of the elbow to the tip of the middle finger.

The Shahzadpoor cubit takes its name from a town in Beloochistan, the birth-place of the Talpoorees, and is a measure extending from the point of the elbow, over the tip of the middle finger, to the setting on of the wrist, or about 26 inches. It is used to measure boats, cloth, &c.

The Shahjuhanee gundha is employed in the purchase and sale of land, and consists properly of five Shahjuhanee cubits (7½ feet); but the Talpoorees, to increase their revenues, have shortened it about three inches, by measuring four cubits only in the regular manner, and the fifth to the setting on of the little finger. This is the Ruyutee gundha.

The Imdadee Gundha is applied to *Inam* lands, and consists of five cubits, measured from the point of the elbow to the tips of the four fingers and thumb, equal to about 7 feet.

A few gold coins (Ushrufee) from India, find their way into the great markets, and pass for more than their value. Among them are the Pootlee, Gunga Ramee, Ukbur Shahee, Moohumud Shahee, and Sher Shahee.

The silver coins in circulation are:—

The Sohrab rupee, in which the assessment is calculated, struck at Khyrpoor in the name of the late Muhmood Shah of Kabul, and worth nearly one per cent. less than the New Company's Rupee.

The Koree, or Hydurabad rupee, in which pensions are sometimes paid, worth only 12 anas, or 25 per cent. less than the New Company's rupee.

When the British army arrived in Upper Sind, the people refused the New Company's rupee in payments for goods and labour, but prefer it now to their own coin, which it threatens to supersede. The Company's rupee stamped with the head of the late William IV. is worth one per cent. more than the Company's rupee without his head.

The Sohrab Rupee is divided into fractional parts, corresponding with those of the Company's rupee in Northern India, as exhibited in the following tables:

Sind Coin.		*Indian Coin.*	
6 to 12 Kourees	1 Udhree.	6 Kourees	1 Tolee.
2 Udhrees	1 Dumree.	2 Tolees	1 Dumree
2 Dumrees	1 Kuseera.	2 Dumrees	1 Chhudam
2 Kuseere	1 Udhela.	2 Chhudam	1 Udhela
2 Udhele	1 Pysa.	2 Udhele	1 Pysa
3 Pyse and 1 Kuseera	1 Ana.	3 Pyse and 2 Chhudam	1 Ana
2 Pyse	1 Tukka.	2 Pyse	1 Tukka
51 Pyse	1 Sohrab Rupee		

The implements of husbandry in Khyrpoor are cheap, and simple in their construction; and even the poorest peasant has a plough, but sometimes hires bullocks to work it. The daily hire of a pair of oxen for agriculture is about the same every where, viz. four tukke, and the driver gets five pys, or an equivalent in grain, and is not allowed to be absent at noon to dine and repose. Two oxen are hired for a plough, or Persian wheel, from dawn till sunset, for six or eight tukke, and relieved at noon. Two pair will till a jureb of land in a day. The hire of a harrow (Sahur), including the services of two men to guide, and four bullocks to drag it, is one rupee per day, and half the sum if discharged at mid-day.

A plough, including a yoke for a pair of oxen, costs 18 tukke, or about 16*d*. English, half of which goes for labour. The items are as follow:—

	Tukke.
The yoke (Punjaree)	2
The handle (Koor) 3¼ feet long	5
The shaft (Huriyn) 9 feet long	5
The share (Choonee)	6
Total,	18

The wood is acacia and other common forest timber. The share is about eighteen inches long, eight inches of which slide into a groove at the foot of the handle; it is shod with a thin plate of iron, five inches long, and weighs a quarter of a seer; but where the soil is sandy the plates are only half the length, and cost three tukke. The iron is of an inferior kind, and badly hammered, but strong enough to penetrate light and moist soils, and there are no stones on the lowlands to impede the farmer's labour.

The harrow is either a circular or flat beam of heavy wood roughly shaped with the axe, and costs one rupee. It measures about eight feet long, twelve inches wide, and six deep, and is drawn by four bullocks harnessed to ropes.

For digging fields, wells, and canals, the people use a large iron hoe with a handle two feet long, which costs two rupees. The iron weighs two seers, and is beaten into a surface twelve inches long and nine wide. This and the common axe are used to clear waste land; the pick-axe is unknown. Burnt sticks and grass are almost the only materials used for manure.

The peasant weeds his land with a *Rumbo*, or broad chisel of iron, similar to the *Khoorpu* used in India to dig the roots of grass. It costs either two anas or two tukke. The reaping hook is filled with small sharp teeth set edgewise, and costs two anas. A wooden fork of five or six prongs, two feet long, is used to collect the stalks of grain and briers for hedges.

The other articles that remain to be noticed are, a square basket to hold grain and food for cattle, fabricated by sweepers (Shekhree) of the stalk of moonj grass, and sold at two tukke each; two or three shallow baskets, shaped like an English dust-shovel, for winnowing grain, made of the same material as the above, and worth an ana each; and a small wooden rake and hoe for collecting the seed and grain stalks, worth together about two tukke.

Water is raised to irrigate land by the Persian wheel, worked by one or two oxen, or a camel, blindfolded, to prevent their shying; and a rude awning of boughs is built over the well to screen the driver from the sun. Sometimes the charge of the cattle is delegated to a woman, who sits like the man behind the yoke, with her legs doubled up, and urges forward the sluggish animals with a shrill cry and a whip of tamarisk twigs.

There are sometimes a dozen wells on a farm, and the same results might be obtained from half the number properly managed. The *Lut*, or beam, that connects the wheels with the ladder, is laid on the ground instead of under it, which subjects it to friction, and retards the bullocks who step over it at each revolution. Hemp and moonj rope are rarely procurable in the hamlets, and the peasant fastens the water jars to the ladder with flags and date leaves, which he gathers and twists himself. They are constantly broken and displaced by the loosening of the ties, and jars are seldom at hand to supply deficiences. The narrow broken troughs which conduct water to the fields allow much of it to escape, and another evil is the encroachment of the river, which undermines the scaffolding of the wheel, and compels the farmer to remove it to a new site.

A pair of bullocks perform a revolution in 15 or 18 seconds. A ladder holds thirty jars, each containing from 2¼ to 3 quarts of water. On an average they reach the top of a well three parts full, and an eighth of their contents is lost from defects in the troughs and machinery. The discharge per minute never exceeds fifty or sixty gallons.

A Persian wheel cannot usually be set in motion for less than sixty rupees. The machinery is worth about twenty-five, but in districts where wood is plenty and cut on the estate, it can be made for sixteen or twenty rupees; the earth pots for raising water cost two rupees a hundred, and a pair of bullocks thirty rupees.

The cost of a wheel in the districts of Roree and Sukhur is as follows:—

	Rs.	*Tke.*
The two wheels *(chukur)* which revolve at right angles, ...	15	0
(Where wood is plentiful 10 and 12 rupees.)		
The *kanjur,* a cross-beam eighteen feet long, raised seven feet from the ground on the trunks of date trees. It receives the pivot of the horizontal wheel, and the oxen pass beneath it, ...	2	0
The driver's seat *(guddee)* a plank ten feet long fixed to the pivot, and inclined downwards, ...	1	4
The *lut,* a circular beam resting on the ground, and connecting the vertical wheel with the *ba-ir,* which it helps to support	2	3
The *ba-ir* or water wheel, about 3½ feet wide, and 6 feet in diameter. A ladder *(mal)* made of date leaves, passes over it and holds from thirty to forty earthen pots *(keengur.)* A principal defect of the wheel might be cured by making the jars thicker, and glazing them, which would prevent the water escaping through the pores, and by separating the jars by a band of rope or mat, the breakage that constantly occurs by their falling on each other would be prevented.		
The *parch,* or trough, five feet long, made of half the hollow trunk of a date tree, to receive the water from the pots, ...	0	13
The *nesur,* a second trough of date wood twelve feet long, which conducts the water from the *parch* to the field.	1	0

In addition to the above there are six timbers which support the troughs and water wheel. ... ...

The machinery is entirely wood, and those parts of which I have omitted the cost, are cut in the farm or forest by servants or hired labourers, and shaped free of charge by the carpenter who contracts to repair the wheel.

The hire of men to cut the wood is about. 1 5

The farmer usually contracts with a potter by the year to supply his wells with pots, and remunerates him with a share of the crop. A Zumeendar of an ancient Mogul family who owns 140 jurebs of land at Sukhur, pays the potter as follows:—

For every well in a sugar field, two rupees and seven tukke, and one seer of goor (molasses) per jureb at each harvest. The same for a jureb of cotton and tobacco, excepting that he gives a seer of dry tobacco and uncleaned cotton, instead of goor.

For a well in fields of wheat and joowaree, without reference to the number of jurebs, seven tukke and twenty-five seers of grain each harvest. For these sums the potter also supplies the Zumeendar with pots for domestic use.

The length of the well-ladder, and number of pots, depends of course on the distance the water is lifted. The pots are a few inches apart, and if a well is constantly worked, are replaced six or seven times in a year.

The carpenter contracts for a well on the same terms as the potter, and repairs the machinery each harvest for two rupees and seven tukke, and a seer of grain, or whatever is grown on the farm.

The cost of digging a cut or well *(kooh)* is five rupees in the Rubbee harvest, and two in the Khureef. The rise of the Indus makes the difference in favour of the last, and often renders a shaft unnecessary. None of the wells in Khyrpoor are faced with masonry, and when the soil is light and liable to injury, a well is sometimes re-made four times in a year: it is impossible to repair an inroad of the river, and the farmer always removes the wheel to a fresh site.

A pair of well-bullocks cost rupees 30, a very fine pair rupees 40, and an indifferent pair 15. Two pair will keep a wheel in motion from daylight till dusk, and are relieved at noon. Where a farm has only one well, it is worked all night, summer and winter, and the water jars are renewed every month. In Daodpootra three pair of bullocks are employed on a well in the day, and the same number at night. In the Delhi territory, and other parts of Northern India, bullocks are never worked at night;* a pair labour all day and are allowed an hour or two at noon to feed and repose. They are stronger and better fed than those on the banks of the Indus, and the labour of lifting water is less constant and severe in the Indian wells than Persian wheel, but the discharge of water is only one half. The peasants of Hindoostan give their labouring cattle oil cake and 1¼ seer of *urhur* (pulse or barley) a day; or double the quantity of cotton seed. Cattle on the banks of the Indus are subsisted on grain stalks.

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* I have however frequently observed the contrary with sugar lands in the upper Doab.

The bullock-driver in Khyrpore gets five pys a day, and a boy only three pys (10 shillings, and 3*s.* 5*d.* a month). He works from morning till night, and eats his meals when he can, and frequently falls a sleep from fatigue, in his master's absence. Some Zumeendars hire bullocks for wells at two tukkes each per diem.

A tenant pays his landlord six rupees a harvest for the use of a wheel, calculated as follows :—

	Rs.	*As.*
The two wheels *(chukur)*,	4	0
The Kanjur,	0	8
The Lut,	0	8
The Driver's seat,	0	4
The Parch trough,	0	4
The Nesur trough,	0	8
	6	0

The tenant is at the charge of feeding and keeping the bullocks, and in some instances repairs the wheel.

The small quantity of rain that falls in Sind, makes it almost needless to store grain. The farmer heaps it in the air in a high and dry situation, digs a trench round it, to drain off rain, and covers it with two or three layers of mats made of *gondlee*, a kind of reed. He adds a compost of clay and chaff, which he beats into a cake, and smooths with his hands. A heap *(pullee)* plastered with cow-dung, will bear the weight of a horseman, and lasts several years. I saw their power to resist water at Sukhur in July 1839, where some heaps were exposed to remarkably heavy rain for two days without suffering injury.

The peasants of Moghulee purgunnah, where date trees are plentiful, cover their grain with mats made of the leaves, and to give additional strength to the heaps, sometimes put a second covering of mats of the peel of *moonj* grass, and over them one or two coats of clay and chopped straw. Grain is thus preserved in situations where there are no means of transporting it to the markets, and on the banks of rivers and canals where the people inhabit temporary huts. But the farmer transports his grain, whenever it is possible, to the mud floor of his cottage, which is smeared with cow-dung, but has neither mats nor carpet, and spreads it in the sun, five or six times a year to expel the weevils which would otherwise destroy it in a few months. Wheat, rice, chunna (Cicer arietinum), bajra (Holcus spicatus) and moong (Phaseolus mungo) will keep in the air for three years, but the heaps are opened once in twelve months to preserve them from insects. Joowaree (maize) and pease are more liable to be injured by weevil than wheat, and will not keep beyond twelve or eighteen months in the air.

Grain is also preserved out of doors in circular jars *(goondee)* of sun-dried earth, capable of holding from eighty to twelve hundred pounds, and taken out once a year, through a hole near the bottom of the jar, and exposed a few days in the sun. A small quantity is kept in houses for daily use in jars of sun-baked earth.

Khyrpoor produces all the grains and pulse common to India. Wheat and joowaree are the staple, and belong to different harvests, and are consumed in nearly equal quantities. The district of Roopa in Moghulee, produces fine crops of joowaree and barley, and bajree and moong are next to these the most common grains. Roree and Sukhur produce rice, but Chandkoh, and the country south of it, yield the largest quantity of any district in north Sind. Chunna (gram) is collected in kind. The land owners usually reserve their share of the crop for their cattle, and all that finds its way to the market belongs to government. Indigo is chiefly grown in the districts of Kyrpoor and Oobaro, and is the only dye used by the lower classes for their trowsers and turbans. It is inferior in quality to that of Bengal, but considerably cheaper. Sukhur and the village of Kundura, four kos from Roree, are considered to produce tobacco equal in quality to any in the province, but it undergoes no preparation beyond exposure to the sun, and is dry and distasteful to the native of India. Gotkee is famed for the quality of its opium, which fetches double the price of that raised at Shikarpoor and elsewhere. The sugar-cane of the villages of Ubdo and Napur, between Sukhur and Shikarpoor, has an excellent character, and it is cultivated pretty generally throughout the province, but is inferior to the produce of northern India and the Punjab. Sugar-candy of an impure colour is manufactured at Khyrpoor and Roree. Large quantities of poppy and garlic are grown at the Biriyah Loh in the district of Khyrpoor, and hemp at Sukhur and elsewhere. Plenty of good cotton is raised in the northern part of Khyrpoor, and in the little district of Shahbelo, two kos north of Sukhur. It is one of the most important products, and supplies the inhabitants with clothing. Looms are established in all the principal places, but the quantity grown is not equal to the demand, and a good deal of the raw and manufactured material is imported.

Dry land (puko) intended to receive cotton, is watered before ploughing, and every four or five days afterwards till the crop is gathered. Wet land (bosee) is not irrigated, and the plough is passed over it three or four times, and five and six times over *puko* land. A square beam of heavy wood serves for a harrow, and is drawn over the last as often as the plough, but *bosee* is only harrowed twice. The farmers of Moghulee purgunnah never manure land, but weed it when the sprout is a span high, and again when it has reached the height of four feet, at the same time they move the soil with a hoe, and throw it up round the roots to nourish and give them vigour. The seed is sown in April, and the produce gathered in July. The plant is often left in wet land till the following year, and yields a second crop in May. It is generally of inferior quality to the produce of India, but better than that of lower Sind. The gathering season lasts altogether three months, but reapers attend only once or twice a week, as the pods do not open in sufficient numbers to require their presence oftener. The crop depends on the swell of the river. A jureb of *bosee* land yields five muns of clean cotton, and a return of forty rupees after paying all expenses: after deducting from this the government tax, amounting to a fourth, it reduces the net profit of the cultivator to thirty rupees. Dry land yields two and a half muns of cotton per jureb, and return of thirty rupees after deducting the cost of labour, but government take a fifth, and leave the cultivator twenty-five rupees. Black soil is scarce, and considered rather better for cotton than puko land. It requires to be constantly watered, and yields about two muns of clean cotton per jureb, seldom three muns. Bosee cotton with seeds in it loses two parts in cleaning, and puko cotton one-third, but their quality and price are the same. Three and three and half seers were sold in 1838 for a rupee, and three seers in 1839, but a sixth less if a purchaser took the pick of the warehouse. From twenty to twenty-five seers of seed *(wounuh)* sold for the same money. Labourers in cotton fields get an eighth or ninth of what they collect, which is a good plan to stimulate their exertions. Some farmers give them only a sixth of the harvest after the first gathering.

There are a great variety of greens and spinach, and among the herbs eaten as vegetables that grow spontaneously, are purslain, and a species of amaranthus. The gardens produce carrots, turnips, radishes, onions, cucumbers, and several kinds of pumpkins, the egg-plant (bangun,) three kinds of bean, pease, kurela (Momordica,) turnee, and mujoon, or dil pusund. The leaves of the carrot, mustard, and pea (until the pulse forms) are eaten, and the root of the lotus (Neerapur), which covers the lakes and marshes. Sesamum, capsicum, garlic, and turmeric abound, and the last is used as a dye. Among the varieties of spinach are chooka, pullee, thoon, mohra, loonuk, mureera, methee, paluk, and the leaves of the ekra tree.

The fruits are—the date, mangoe, plantain, pomegranate, apple, grape, lime, citron, fig, apricot, water and musk melon, pistachio, and keora nuts, several kinds of wild plum, the tamarind, &c. Khyrpoor produces two kinds of pomegranate: the best is full of large, white, juicy seeds, and grows abundantly in the gardens of Roree, and at Ghotkee in north Khyrpoor. The other kind is made into an acid shurbut, and the seeds are dried and sold to poor people who cannot afford to purchase mangoes, and form pickle with the addition of salt, dhuniyu, capsicums, and cocoanuts. Unripe grapes are used for the same purpose. The flowers of pomegranate are employed to dye leather for shoes and water bags. A refreshing beverage is prepared from Keora flowers. The grape of Khyrpoor is small and acid, and the only good kind procurable in the country comes from Kabul and Persia. The apricots are small, hard, and insipid, and the apples are a little bigger than crab apples, and rather less acid.

Khyrpoor yields plenty of dates, and they form part of the food of the lower classes, who obtain a strong spirit from the juice by distillation. By far the largest quantity are at Shikarpoor and Bukur. The gardens on the banks of the Indus at Bukur, and several miles below it, are a delightful relief to the eye after the endless tamarisk woods of the lower Indus, and rival the cocoanut groves of Bengal in beauty of foliage. The fruit is, however, very inferior in size and flavour to the Arabian and Egyptian date, though it surpasses the spurious kind of Northern India. The tree emits, after rain, a disagreeable smell, and the leaves that fall into water charge its colour in a few hours to a deep green, like that of a stagnant pool, and are said to render it poisonous. The *Kiya,* a reddish coloured maggot, about half an inch long, is born in the tree, and destroys the fruit; the people apply fire to the outer crust of the stem, which is about three quarters of an inch thick, and burn the coronet of leaves, where the insects breed. This severe treatment is seldom fatal to a tree situated in good soil: the leaves appear in about a month, and fruit in the usual course, and the tree is cut down if it does not recover soon after the period mentioned. The date is not irrigated, but low situations on the banks of rivers where the floods deposit a rich clay and fine loam are most favourable to its growth, and not one in a hundred trees that are burnt perish, but from five to ten per cent. in sterile soils. If rain falls on the date when nearly ripe, it completely destroys the flavour, which happened in 1839. The harvest begins about the middle of June, and terminates from the seventh to the fifteenth of August, when the people consider the hot season at an end, and the weather becomes perceptibly cooler.

Dates are of four kinds, distinguished by their colour, shape, and flavour: one is a pale yellow, a second a dark brown, a third light purple, and a fourth a deep purple hue. The brown kind is the largest and best. The wholesale price in Roree of a mun of prime quality at harvest time is two rupees, but one, and even two muns of inferior dates are sold for half the money. From Rs. 1¾ to 2¼ are usually paid for a mun in the bazar during harvest, but the price doubles after they are dried and pressed, and advances progressively. At Shikarpoor they are more plentiful than at Roree, and sell for about half the price.

The date is extremely heating if eaten in any quantity. Five or six days exposure to a bright sun are sufficient to dry them, and the peasants remove them to their huts in circular baskets *(pinda)* made of date leaves or tamarisk boughs, each containing about forty-five seers, and tread them into a solid mass. The fruit will not keep beyond twelve months, in consequence of the ravages of small maggots, called *kiya* and *soosra.*

The date is raised from seed, and sends forth many shoots from the foot of the stem. July and August are the best season for sowing seed, but it is put in the ground as late as October, and springs up in about a month. The tree bears fruit the third year in good moist land, but takes four or five years to come to maturity in salt sterile soils. A fine tree favourably situated, yields sometimes three muns of fruit, which is the maximum; a bad one not a third of the quantity; a jureb containing from eighty to a hundred trees, yields, on an average, a return of 320 rupees, but government only leave the cultivator 20 rupees, or 1-16th, and levy a duty of twenty pys on every mun of fruit exported to foreign countries, and carried for sale to other parts of Khyrpoor.

The people assert there are trees at Sukhur and Rooree two hundred years old, but probably no part of the original stems remain; they use the wood for door-posts, pillars, and water wheels, but never in the roofs of houses. Insects destroy the core, leaving it to appearance, perfectly sound, and it is not considered to last beyond five, or at the most, eight years. The English at Sukhur, either from ignorance of this circumstance, or the difficulty of procuring timber suitable for building, have converted the date into rafters. Trees are felled only when they give bad fruit, or have done bearing, and are worth from six to thirty anas, according to size.

(To be continued.)

A cursory Notice of Nayakote. By B. H. HODGSON, *Esq. Resident at the Court of Nepal.*

Nayakote, or the hither Nayakote as it is often called, to distinguish it from Nayakote of the Choubisi, is the name of a petty town and district lying WNW. seventeen miles from Cathmandoo, by the high road to Gorkha. The town (so to speak) is situated at the northern extremity of the district, upon a spur descending south-westerly from mount Dhaibung, or Jebjibiar, at about a mile distant from the river Trisool on the west, and the same from the river Tadi, or Surajmatti, on the south and east. The town consists of from 60 to 100 pukka three-storied houses, in the Chinese style of Cathmandoo, chiefly owned by the court and chiefs; of a durbar, called the upper, to distinguish it from the lower one on the banks of the Tadi, and of a temple to Bhairavi, all in the like style of architecture. The town forms only a single street, lying in an indentation on the crest of the ridge, and is consequently not visible from below on any side, though the durbar and temple, from being placed higher, are so partially. Nayakote, up to the late war with the English, was the winter residence of the present dynasty of Nepal: but as the situation of the town is bleak and uncomfortable at that season, the court and chiefs then usually resided in mansions still standing at the base of the hill towards the Tadi, but now a good deal dilapidated like the town residences, owing to the court having been stationary at Cathmandoo since 1813. The district, like the edifices of the great, bears marks of neglect, which are the more palpable by reason of a considerable portion of it being devoted to gardens and orchards, the property in a great measure of the owners of those edifices. The elevation of the town above the level of the Trisool must be from 800 to 1,000 feet, and the effect of this elevation in concealing it is aided on the side towards the Tadi by a fine forest of saul trees occupying the whole declivity. On other aspects the saul trees, inherent to the whole site, are reduced to scrubby brush-wood by perpetual injudicious cutting and defoliation, the leaves being used as plates to eat from, and being perpetually carried to Cathmandoo for sale there. This ridge has a soil of a deep red clay, and its general form is rounded, but broken by deep ruts and ravines in most directions. Towards the Trisool west, and towards the Tadi south and east, the declivity of the ridge of Nayakote is precipitous; but towards the junction of the two streams, in a south-westerly direction, the hill falls off more gently, and about a mile and a half below the town, spreads into an undulating plain, which occupies almost the whole space between the rivers to their junction, and the ridge on which the town stands. This tract may be represented as a nearly equilateral triangle, two of the sides of which are formed by the rivers, and the third by the ridge. This triangle is a plain, exclusive of the declining spur of the ridge—and is an *elevated* plain, exclusive of that north-easterly angle lying on either side the Tadi, towards, and to its junction with the Sindhu at the base of Bhaloo Danra. This north-east corner is on the level of the rivers, the rest are variously from 1 to 400 feet above their level; and together they constitute the chief part and body, as it were, of the lowland district of Nayakote, the rest, or legs (so to speak with some aptness) of the district, being the glens of the Tadi and of the Sindhu as far upwards, respectively, as the confluence of the Likhoo, and the base of Burmandee. The mountain ridges enclosing the district of Nayakote, as above defined, are, beginning with the Nayakote ridge itself, and circling east back again to it—Maha Mandal, Nerja (north of Tadi), Kabilas (dividing the Tadi and the Likhoo), Bhaloo (dividing the Likhoo and the Sindhu), Dang-mai or Burmandee, Madompoor, and Ghoor (enclosing the glen of the Sindhu on the south), Belkote (carrying on the same southern barrier down the Tadi to Devi Ghaut), Jhiltoong (below the ghaut, but still on the south of the river), Phirkiab (opposite to Jhiltoong on the north of, and *across* the river), and Gowri and Samari-bhanjang (running northerly up the Trisool to the Sunga, or bridge at Khinchat), where we complete the circuit by linking the last to the Nayakote ridge, the two in that spot pressing close on either bank of the river. With regard to size, if we speak of this tract as a whole, it will not be easy to be at once precise and distinct; but we may observe in regard to the body of the district inclusive of the north-east corner on the low level, that from Devi Ghaut direct, up the Trisool to the Sunga at Khinchat, the length is four miles, by the road five miles; from Devi Ghaut to the town of Nayakote from four to five miles through the middle of the elevated portion of the district; from Devi Ghaut up the Tadi to its junction with the Sindhu, four miles; and the same from the latter point to Khinchat across the base of the triangle, from the Tadi to the Trisool, again, and inclusively of the legs of the district from Devi Ghaut to Burmandee, up the glens of the Tadi and the Sindhu is six miles; and from the same point up the Tadi to its junction with the Likhoo, eight miles. The maximum breadth of the entire district is at the base of the triangle just adverted to, and here the distance by the road from Bhalu Dawra to Khinchat is four miles. The mean maximum of breadth however is not above three miles, that of the plateau alone between the principal river, two miles. But, in speaking of breadths especially, we should distinguish between those parts which have been called the legs and the body of the district, the legs being the subsidiary vales of the Sindhu and of the Tadi. The former of these, then, from the base of Burmandee to the apex of the Bhaloo ridge, where this glen merges in the larger one of the Tadi, is only from 200 to 400 yards wide; whilst the width of the vale of the Tadi in that portion of it which extends lengthwise from the apex of the Bhaloo ridge to that of Kabilas at Chonghora, is from ½ to ¾ of a mile: and if we distinguish (as well we may) the low tract lying on both banks of the Tadi, between the western extremity of the two last named divisions, and the point where the Tadi gets compressed into a mere gully on the upper confines of Belkote, (forming the north-east corner just spoken of inclusively) we have a third tract, which is some 1,200 yards in medium breadth. The length, again, of the first of the subdivisions of Nayakote is two miles; of the second, four miles; of the third, one mile. All these three are tracts of the same character, that is they are hot, swampy, rice beds on the level of the streams that water them, except in the instance of the glen of the Tadi, which, upon the right bank of the river, possesses a widish strip of land considerably raised above the stream, and running under the Maha Mandal and Nayakote ridges (where the court and chiefs have houses) to where the latter spreads into the chief elevated plain of the district above spoken of. That plain cannot be watered from the Trisool or Tadi by reason of its elevation; and as the Nayakote ridge, whence it is derived, yields no efficient springs of water, the plain is condemned to exclusive dependence on rain. Every such plain or plateau is, in the language of Nepal, a Tar; whereas the lower and perpetually waterable tracts, above contradistinguished, are, in the same language, called

Byasi. The first of the three is the Sindhu Byasi, from the name of its streamlet, the Sindhu; the next the Tadi Byasi, from its river; and the third either Tadi Byasi also, or Sangum Byasi, from the confluence of the Sindhu and Tadi within it. The Tar, or chief tract, is numerously subappellated, as Pullo Tar, next Devi Ghaut; then Manjhi Tar; then Burr Tar, next the Nayakote hill; with various others parallel to these and nearer the Trisool, towards which the plateau in general has a tendency to sink step-wise, though never nearer the deep narrow bed of that river than several feet, twenty or more. These Tars are rather more wholesome and habitable than the Byasis, and capable of more various culture, though chiefly of trees, since trees alone can flourish deprived of water except from rain; and thus is, in part, explained the great predominance of mangoe and other groves over fields of agriculture in the Tar or Tars of Nayakote, which however lovely at all seasons, boast no winter or spring crops, despite of the high temperature of the place; the Tars are too dry, and the Byasis too wet for such spring crops, though they be common in the much colder valley of Nepal Proper. The difference of temperature between the valleys of Nayakote and of Nepal Proper is occasioned by the difference of elevation above the sea. This difference amounts to 2,250* feet; and the same cause affords us also the only apparent, but very far from satisfactory explanation of the fact, that, whilst Nayakote is pestilently malarious from March to November, Nepal Proper is free from this scourge, *all other circumstances being the same in each valley.* The lowlands of Nayakote, consequently, are but very thinly peopled, the only permanent dwellers therein being several singular and affined races of men, called Durri, Kumhal, Manjhee, Bramoo, and Déňwár, of whom more hereafter, and some few Parbuttiahs and Newars. The Newars build and dwell solely on the Tars. The Parbuttiahs will not adventure even so far, but usually have their houses on the hills around, and never suffer themselves to sleep in any part of the low lands for a single night between April and November. In the Byasis, then, are the houses of Denwars and their compeers only: in the Tars, those of the above people and of some few* Parbuttiahs and Newars also, but in neither do the clusters of cottages hardly ever reach the size of a village, and the dwellings stand for the most part single and scanty. The whole district is said to contain 700 houses, but I doubt it, even allowing 100 or 150 houses to the town; and half the number in either case would probably be nearer the mark.

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* The valley of Nepal is 4,700 feet above the sea.

The soil of Nayakote contains a juster proportion of clay to silex and calx than the soil of the greater valley of Nepal Pròper, which is derived principally from the débris of grantiic formations; and hence we obtain an explanation of the reputed eminent fertility of the former, and more, surely, of its celebrated potteries. The heights around Nayakote are of inferior size, consisting on the northern side especially, mostly of iron clay, of very deep red tint; and the superficial soil of the Tars is for the most part the same, the substratum being however. usually gravel, whence the dryness of their soil is increased.

Tho soil of the Byasis also is clayey, but untinted luteous white, and where unmixed with silex or other ingredients, even more tenacious than the red clay. The pottery clays are exclusively of the latter sort. Mica, so common in the great valley of Nepal, is here never witnessed. The high temperature of Nayakote admits of most of the trees, forest and fruit, as well as of the superior Cerealia of north Behar and the Tarai being cultivated with success, though they cannot be raised in the great valley. Nayakote has besides distinguished products of its own, which are not found, or not found so good, in the plains of Behar; these are the orange and the pine-apple. The forest trees peculiar to the district, not found in the great valley, and identifying this of Nayakote with the Tarai and plains, are the Saul (Shorea robusta), Burr and Pipal (Ficus Indica et Religiosa), Semal, or cotton tree, Pras, Neem, and Mohwa. The Pinus longifola, and other mountain growths, are frequently found mixed with these on the declivities around.

The chief of the fruit trees is the mangoe of various sorts, many exotic and superior, though the celebrated Bombay mangoe is apt to lose its flavour by swelling into undue and dropsical dimensions; the tamarind, the Bair, the jack fruit or Bel, the Kathur, the Badhur, the Pukri, the guava, the custard-apple, or Sharifa, and, in a word, all the ordinary fruit trees of India, none of which, it should be added, flourish in the larger valley. To the above we must subjoin the following exotics grown in the gardens of Khinchat, belonging to the government. Naril, or cocoanut, Supari, or betel vine, pear, apple, apricot (native), and plums of many kinds. All but the two first of these, however, flourish as well, or better, in the greater valley, being European products.

The smaller horticultural products of Nayakote are pine-apples, (excellent,) plantains of many kinds and good, Jamans four sorts, melons, but no grapes nor peaches; pines, plantains, and jamans are denied to the greater valley, where however the orange—that boast of Nayakote, flourishes. The better kinds of the Nayakote oranges are equal to any in the world, so that our horticulturists in India should endeavour to procure and propagate them. The agricultural products of Nayakote resemble in general those of the greater valley of Nepal Proper; and as the latter have been fully described in print, I shall on the present occasion specify only the peculiarities of Nayakote produce, resulting from its more tropical climate. It has already been observed that whereas there are two crops per annum in the greater valley, there is only one in the lesser, because of the excess of moisture in the Byasis, and of the total want of means of artificial irrigation in the Tars. The Byasis yield only rice, which is not planted nor reaped at the early periods prevalent in the greater valley, but at the later ones usual in the plains of Behar; and the like is true of the sugar-cane, which is grown on the skirts of the Byasis. In the great valley every blade of rice has disappeared by the beginning of November, and half the crop by the middle of October; the untransplanted sorts of Ghya even sooner. In Nayakote the rice-harvest lasts till the beginning of December, nay to the middle of that month, and there are then no means of desiccating the fields rapidly enough for a spring crop. The rice grown in the Byasis are different from those grown in the greater valley, with the exception of Malsi and Touli, and even of these two sorts there is but little. Munsera is the staple crop of Nayakote, and of its several kinds, as Doodia, Gouria, &c. It is of a bright golden hue, straw and grain, and longer in the stalk than our rices, to the best of which it is equal in quality. Among the seventeen to twenty sorts of rice grown at Nayakote, are the Mal-bhog, Krishen-bhog, and other fine descriptions for which Phillibheet is so famous. None of these last can be raised in the greater valley. The following are the names of the Nayakote rices—

Malsi,
Touli,
Doodraj,
Manseera,
Gouria,
Kala Gouria,
Krishen-bhog,
Bairini,
Charinagari,
Jara Sari,
Mal-bhog,
Jhagri,
Isegoon,
Anandi,
Roodra,
Katonja,
Tharia,
&c. &c.

The Ook, or sugar-cane of Nayakote, is incomparably superior to that of the greater valley, and indeed to that of most parts of India. There are five principal sorts, four of which are yellowish, and the fifth dark red. I purpose to send specimens of these to Calcutta for examination. Ook is grown on the skirts of the Byasis as well as on the declivities of the hills near them. On the Tars, or plateau, or upper levels, are grown, besides the ordinary rain's produce of similar sites in the greater valley, the superior sorts of Dall such as Arher, and cotton of inferior quality, neither of which can be raised at all in the greater valley. Of the whole surface of the Tars of Nayakote, a half probably is devoted to gardens and orchards; a quarter to fields of dry produce; an eighth to rice or wet produce, and the remaining eighth may be barren.

The genera of Mammals and Birds observed during a hurried visit, under disadvantageous circumstances, were Nemorhedus (Ghoral), Stylocerus (Katura), Martes (Flavigula), Sciuropterus (Magnifirus), Scinrus (Locria), all common to the greater valley; Corvus, Pastor, Coracias, Alanda, Anthus, Motacilla, Budytes, Pyrgita, Phœnicura, Saxicola, Phœnicornis, Dicrurus, Musciapa Tichodroma (Muraria) Picus, Palœornis, Clorhynchus, Totanus, Tringa, Egretta, Anas, Qurrquedula, Carbo, Mergus, Turtur, Euplocomus, Gallus, (Jungle-cock Baukria,) Chœtopus, Perdix, Coturnir, Hemipodius. Of these Gallus, Coracias, and Palœornis, unknown to the greater valley, proclaim the *quasi*-Indian climate of Nayakote; as Carbo and Mergus, also unknown there, do its larger rivers. For the rest, the species as well as genera are those common to both districts. The wall-creeper of Europe, supposed to be confined thereto, is frequent in both.

The commerce and manufactures of Nayakote are too inconsiderable to claim specific notice; but in the cold season, in this as in all other smaller valleys of Nepal, booths are erected on the river-side by traders and craftsmen from the great valley, who reside there for the four coldest and salubrious months (December to March inclusive) exchanging grain for rock salt with the Bhoteahs, both Cis and Trans-Himalayan, dyeing the home-spun cloths of the neighbouring hill tribes with the madder supplied by them and the indigo of Tirhoot, and tinkering, and pedlaring, and huckstering, for the assembly collected at this petty sort of fair.

It has been already observed, that the inhabitants of Nayakote consist of several peculiar races, besides the ordinary Parbattiah tribes, and the Mewars. Both the latter have been described elsewhere, I shall therefore confine myself in this place to a short notice of the former, or Denwar Darre, Manjhi, Brannoo, and Kumhal. These tribes are exceedingly ignorant, and moreover are disposed to use the little wit they have in cunning evasion of all inquiry into their origin and history, affecting to be hill men, employing the Parbattiah language, and pretending to have forgotten their father-land and speech. In their dark-hued skin, slender forms, oval faces, elevated features, and peculiar dialect, barbarous *patios* as the last now is—may be traced, however, the indisputable signs of a southern origin. These men certainly do not belong to the Tartaric stock of the mountaineers of Nepal, but either to the ordinary stock of the Indian population (Indo-Germanic) or to some of those fragmentous branches of it which still here and there represent a preceding aboriginal race, as the Hos, Mundas, Gonds, Bhils across the Ganges, and the Tharus of the Nepalese Tarai. Between the last mentioned and the Denwars in particular, a distinct affinity may be traced; but to verify and illustrate this affinity through Tharoo helps, is as little feasible, as to do it through Denwar ones; and I shall only therefore venture to say at present, that whether the Tharoos of the Tarai, and the Denwars and their compeer cultivators of Nayakote, and of other similiar low and malarious valleys within the hills (for in many others they are found), belong to the aboriginal or to the ordinary stock of Indian population, they are closely connected among themselves, separate from the Tartar breed of the highland races, and, in the hills emigrants from the plains of north Behar several generations back.

The Manjhis, Kumhals, Bramoos, Denwars, and Darrees inhabit with impunity the lowest and hottest valleys of Nepal, just as the Tharoos do the Tarai; and the Mundas and Oorans of Chota Nagpore, both as recent servants and settlers, merely in the case of the last two, who are chiefly mentioned here because of their participating with the races now before us, in that singular immunity from malarious affection which is not known to be the attribute of any other people whatever.

Wherever malaria rages from March till November, beyond the saul forest and within the hills, there the Denwars, Durres, Bramoos, Kumhals, and Manjhis dwell, and dwell exclusively; sometimes collected in small villages, more usually in scattered cottages comfortably built of unhewn stone, or wattles laid over with plaister, and furnished with a pent and overhung roof of grass or rice straw, which is verandahed towards the east. They follow the avocations of agriculturists, potters, fishermen, and ferrymen, and at all these crafts, and more especially at the second, they are very expert; the Kumhals of Nayakote in particular being renowned for their workmanship even in the vicinity of the very able craftsmen in that kind, whom the great valley produces.

These races of men affect a distinctness among themselves which is fit only to make an enlightened stranger smile, though it may possibly indicate different periods of migration from below, and of settlement within the hills, or migrations from different parts of the plains. In general the five tribes or races will not intermarry among themselves, nor with any of the races around them; and they allege that their languages (dialects) as well as usages are distinct. But they all call themselves Hindoos, though they neither believe in the sacred scriptures of the Hindoos, nor accept the sacerdotal offices of the Brahmans. With a general resemblance of manners and customs, they have some trivial diversities of usage, as follows:—

Manjhis. Their priests are the old men of the tribe; in making burnt or other offerings to their deities, they use no sacred or other words or prayers. On account of births they are impure for four days: they cut the navel on the day of birth, and four days afterwards make a feast. On account of deaths the impurity lasts for ten days, but under stress of business one day's observance will suffice at the moment, so that the other nine are observed afterwards. *Denwars.* They allege that they came from the western hills; their priests are their husbands' daughters' and sisters' sons.* Impurity at births lasts for ten days, and the same at deaths: they will not eat pulse dressed by

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* These purely arbitrary customs may serve hereafter as helps in tracing the affinity of these and other semi-barbarous races throughout the mountains and hills of the Indian continent, the *disjecta membra* of its original population.

Brahmans, but rice, if it have ghee in it, they will. They sometimes enter into trade and service. *Durree, Kumhal, Bramoo,* have a general resemblance of manners and customs with the last; but they will not eat rice dressed by Brahmans, whether it have ghee in it or not, but will eat other things of Brahman's dressing. None of the five races has any written language or characters; but the investigation of their common connexion, and of their affinity with other aboriginal races inhabiting other more or less secluded localities throughout the plains of India, might still be managed through their speech, their physical attributes, their manners and customs, if the Argus jealousy of the Nepal government could by any means be charmed into a more discriminating use of Chinese maxims of foreign policy.

Rivers falling within the above limits.

1. The *Sindhu,* rises from Sindhubhanjung, an offset from mount Manichur, or the most eastern part of Sivapoor, the northern barrier of the greater valley. The Sindhu has a course of about fifteen miles almost due west, behind, or to the north of Sivapoor and Burmandi, through a narrow fertile glen, which is somewhat interrupted by the projection of the base of Burmandi, where the main road from Cathmandoo runs. Above this point the glen often bears the name of Jansen; the river is a mere streamlet drawing half its water moreover from the west aspect of Burmandi, below the Resident's Powah, or bungalow. It falls into the Tadi at Narain, or Ghur Ghaut, being divided from the Likhu by Bhaloo Danra, or the bear's ridge.

2. The *Likhu,* a somewhat larger stream than the Sindhu, parallel to it on the north, and separated from it by Bhaloo Danra. The Likhu rises from above the Kabilas ridge, which divides it from the Tadi on the north. The course of the Likhu, though in general parallel to that of the Sindhu, yet radiates towards the north, as the Tadi does still more. The Likhu is about double the size of the Sindhu, and has a course of perhaps twenty miles; it falls into the Tadi at Choughora, four miles above the lower Durbar of Nayakote. Its glen is cultivated throughout, and has an average width of 300 yards in its lower part. It is not a third the size of the Tadi.

The *Tadi,* classically styled Suryavatti, from it taking its rise at Suryakund, or the Sun's Fount, which in the most easterly of the twenty-two little lakes of Gosainthan, is thrown off towards the east, as is the

Trisul from the same point towards the west, by the loftiest of the snowy peaks in the region of Nepal Proper, and which is consequently the point of divergency of the nearest seven Gandasi on the one hand and of the seven Consiki, or Cosis, on the other. The Tadi, however, though at first put off in an easterly direction, is drawn round westerly to mingle with the seven Gandacks, instead of joining the proximate Milamchi and Inalcini, or first feeders of the Sun Cousi, by a large ridge running south from Gosainthan nearly to Sivapoor, and putting off laterally towards the west the inferior ridges of Kabilas and Nerja, which separate the rivers Likhu and Tadi in all their lower and parallel courses. The Tadi proceeding at first easterly, is gradually bent to the west by the great ridge just mentioned. The whole course of the river to Devi Ghaut, where it merges in the Trisul, may be thirty miles, ten east and south, and the rest WSW. In its lower course, before reaching Nayakote, it is bounded on the left bank by the narrow ridge of Kabilas, and on the right by that of Nerja. It receives the Likhu at Choughora, four miles above, or east of, the lower Durbar of Nayakote, and the Sindhu at Narain Ghaut opposite to that Durbar. In the rest of its course of about four miles WSW. to Devi Ghaut it confines the great Tar plateau of Nayakote on the south, just as the Trisul does on the north. At Narain Ghaut the Tadi in December is thirty to forty yards wide, and two feet deep. It is but little wider or deeper at Devi Ghaut, and consequently is not a tenth of the size of the Trisul, which at the Sunga of Khinchat is thirty-six yards broad and twenty-two and a half feet deep. The glen of the Tadi is cultivated throughout, nearly, and in its uppermost parts is said not to be malarious.

The *Trisul*, or most easterly of the seven Gandacks of Nepal, rises from the principal of the twenty-two Kunds, or lakes of Gosainthan. These lakes occupy a flat summit of considerable extent, that cannot be less than 16,000 feet high, and lies immediately below the unrivalled peak variously called Nilkanth, Gosainthan and Dhanlogiri. The lake more especially called Gosainthan is probably a mile in circuit, and close behind, it from the perennial snow, issues by three principal clefts (hence the name Trisul*) the river Trisul, or Trisul,

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* The legend of the place states that Maha Deva went to the snow to cool his throat which had been burnt by swallowing the kal kut poison, that appearing at the churn-

Gandaki. Its course is at first due west almost, for perhaps fifteen miles, but then turns SSW. running in that direction for twenty miles, and more, to Devi Ghaut. It is a deep blue, arrowy, beautiful stream, conducting not only the pilgrim to Gosainthan, but the trader and traveller to Tibet; the road to Kerung in Tibet striking off from the river where it bends (as you ascend) to the east, and the town itself of Kerung being visible from Gosainthan in clear weather, at the distance of perhaps thirty miles. The Trisul, four miles above Nayakote, receives the Betravati at Dhaibung from the NE. It is a petty stream, not having a course of above fifteen miles from one of the resilient angles or bosoms of mount Dhaibung or Jibjibia, the continuation of which ridge towards the west, and across the Trisul, is called *Salima Bharsia*. This latter ridge conducts another feeder into the Trisul from the NW. called the Salankhu, of about the same size with the Betravati. Considerably south of the Selima ridge, is the ridge called Samribhaujang, whence flows a third and still smaller feeder of the Trisul, named the Samri Khola, which disembogues itself into the Trisul from the NW. half a mile to a mile below the Sunga of Khinchat. The valley of the Trisul is narrow, and without any Byasi, or plain on the level of its waters, which flow in a deep bed. The height, however, on one or both sides, supply numerous rills for occasional cultivation, which is maintained as far up as ten miles above Dhaibung, a considerable village, where the ordinary Parbuttiah population begins to yield to the race called Kachar Bhotiahs, or Cis-Hemalayan Bhotiahs. At Devi Ghaut the river Trisul is passed by a ferry most jealously guarded; nor is the river thence to Devi Ghaut permitted to be used for any sort of transport, or even for the floating of timber, though the rapids (there are no cataracts) may help the prohibition. A few miles below Devi Ghaut the streamlets poured into the Trisul by the glen of Dhunibyasi, affords much better access to the great valley of Nepal, by the route of the Trisul, than that which follows that river to Nayakote and thence leads over Burmandi. These better routes issue into the great valley at Thankote, and at Ichangu Narain.

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ing of the ocean threatened to consume the world. Maha Deva is called "blue throat," from the injury he sustained. He produced the river by striking his Trisul into the snows.

Fossil Shells discovered by Capt. HAY, *1st European Regiment, in the neighbourhood of Bajgah, Afghanistan.**

The fossil shells of which the accompanying are rough sketches, were all found by myself in the range of mountains between the Dundan, Shikun, and Karekotal passes; in fact nearly the whole at Bajgah. The formations in which they are found are so various, that I shall leave better geologists to describe them, but they are chiefly found in contorted strata.

No. 1. *a* and *b*. two views of the same shell.
2. Upper and under views of, apparently, the inhabitant of a shell; edges carinated: it is imperfect.
3. Tuberculated, and considerably depressed.
4. Plagiostoma?
5. A fragment only.
6. Gryphæa. There are no less than six species of Gryphææ (I think) found here.
7. Puzzles me. In appearance it is a Haliotis; but I have seen some specimens with the remains of a second [illegible] in which case it would approach the Gryphæa.

So many of the Gryphæa being found here, would argue that the water had formerly been of a considerable depth. Masses of them are found, and apparently adhering to the rocks which they cover so thick and regularly, as to be quite [illegible] coat of mail.

8. Apparently a Univalve.
9, 10, 11, 12. Fragments of Bivalves.
13. Univalve costated.
14, 15, 16, 17. Bivalves. Specimens of 16 very perfect and close.
18, 19, 20, and 21. Outlines of four species of Gryphææ of natural size.

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* NOTE.—The publication of these drawings has, I regret to say, been long delayed owing to circumstances I could not controul. The fossils whence these are taken "with many other valuable collections of geological specimens," says Capt. Hay, "and all my drawings," were lost when H. M. Shah Shooja's 4th Regt. of Infantry retired from Bajgah.

H.

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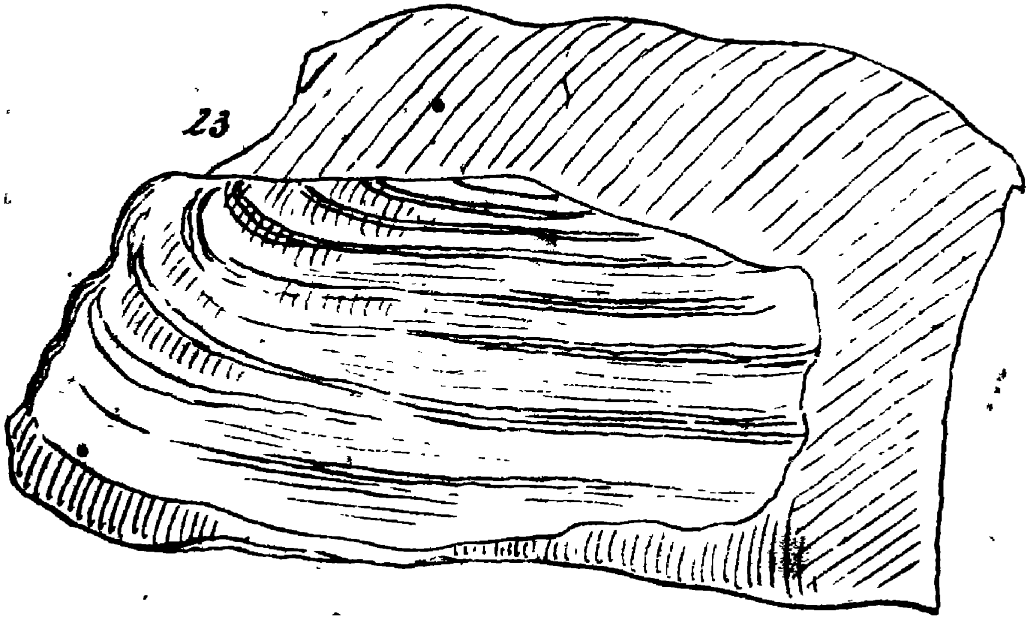
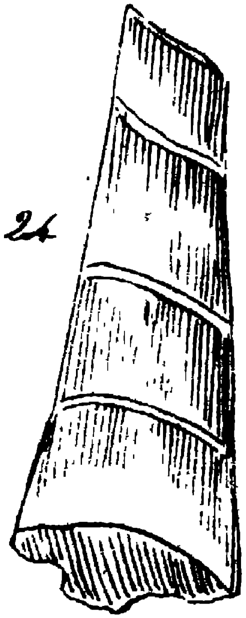


24



22. Piece of Coral ?
23. Has passed into Limestone.
24. Cavity formed in a conglomerate by a Teredo: but the fish itself, which is petrified, resembles a cork-screw; they are of various sizes, all larger at one end than the other.

I have many other shells difficult to sketch, and two species of Cidaris

I should be glad to have correct drawings presented to the Society, as the distance is so great, that the probability is my collection may never reach India, or even the eyes of a connoisseur. Each shell having fragments of the rock adhering, will also enable me to classify their geology whenever I may meet an experienced individual.

It may be well to state, that I met with no shells in any of the mountain formations between Cabool and Syghan, where fragments are first observable in a yellow sandstone.

The level of Bajgah above the sea is about equal to that of Cabool.

Proceedings of the Asiatic Society.

(Friday Evening, 5th March, 1841.*)*

The Hon'ble Sir E. RYAN in the chair.

Capt. W. SMITH, proposed at the last Meeting, was ballotted for, and duly elected, to whom the necessary communication of his election, and rules of the Society for guidance, was ordered to be forwarded.

The following gentlemen were proposed as Members; viz.

WELBY BROWN JACKSON, Esq. C. S. proposed by J. S. TORRENS, Esq., seconded by the Secretary.

FREDERICK BEAUFORD, Esq. C. S. proposed by J S. TORRENS, Esq., seconded by the Secretary.

WILLIAM MASTERS, Esq. Head Teacher, La Martiniere, proposed by Dr. J. M'CLELLAND, seconded by the Secretary.

Library and Museum.

Lardner's Cabinet Cyclopædia;—Geometry, ...	1
Smith's Miner's Guide, London, 1836, 8vo...	1
Chart to ditto, ditto, ...	1
Naturalist's Library;—Mammalia; Natural History of Dogs, by H. Smith, vol. 1st, Edinburgh, 1840, 8vo.	1

Naturalist's Library;—Introduction to Entomology, by J. Duncan, Edinburgh, 1840, 8vo. l

Sleeman's Report on the Depredations committed by the Thug Gangs of Upper and Central India, Calcutta, 1840, 8vo. l

Society for the encouragement of Arts, Manufactures, and Commerce, London, 1840, ... p

Oriental Christian Spectator, vol. 1st, No. 11, and vol. 2nd, No. 1st, ... p

London, Edinburgh, and Dublin Philosophical Magazine and Journal of Science, vol. 17th, No. 110, October 1840, ... p

London and Edinburgh New Philosophical Magazine and Journal of Science, 3d. Series vol. 15th, Nos. 98, 99, and vol. 16th, Nos. 100, 101, and 103, ... p

Magazine of Natural History, New Series, vol. 4th, No. 40, ... p

Calcutta Monthly Journal and Repository of Intelligence, 3d Series, No. 69, August 1840, and No. 70, 74, for 1841, ... p

Annals and Magazine of Natural History, No 35, October 1840, ... p

Letters and Papers from the Société Royale D'Agriculture et de Commerce de Caen (leaf,) .... p

Journal des Savants, Aout, 1840, ... p

Annals de Chimie et de Physique, per Gay, Lussac et Arago, Tome 72, October 1839, ... p

Glossarium Sanscritum, a F. Bopp, fasciculus, 1, Berolini, 1840, ... p

Geneological Table of the Posterity of Timur, (in Persian) in leaf,.. ... p

On Batta ; Manuscript, (in German,) .... p

For Distribution.—

(Notice,) on Tea from Assam,	12 Copies.
(ditto,) on Bengal Silk,	12 ditto.
(ditto,) on Jungle Silk,	12 ditto.

A Frame containing various coloured glasses;—presented by D. McFarlan, Esq.

Victoria Armenian Spelling Books;—presented by Mr. J. Avdall.

Burmese palm-leaf book with figures;—presented by Capt. McLeod.

A box containing several impressions of coins in Sealing-wax ;———

The plan of the Ghât to be erected to the memory of the late Jas. Prinsep, Esq. ;—presented by R. H. Rattray, Esq.

The Secretary submitted a copy of the "Bon Zeen," a Burmese Work on Natural Philosophy, of ancient date;—presented by Captain W. McLeod.

Read a letter from W. Dunbar, Esq. Assistant Surgeon, 5th Irregular Cavalry, intimating the discovery of a coal bed in a village named *Bullea,* situated about 14 miles to the south of Hazareebaug.

"On the banks of the *Suncherai,* a small nullah," writes Dr. Dunbar, "running into the *Haharoo,* I first saw the coal, in a bed about three feet in thickness, with a gentle dip or inclination to the west. It was splintery, very black, lying below a friable sandstone and alluvium containing konkur. The bed seemed to be of great extent, and I have no doubt that any quantity of coal can be procured at this place.

I brought some specimens, and found that those from near the surface did not burn well, the other burned very well indeed, without a great deal of smoke, and leaving an inconsiderable quantity of ashes."

Read a letter from Mr. Secretary BUSHBY, of the 30th December 1840, enclosing copy of a dispatch from the Honorable the Court of Directors, requesting that the Asiatic Society will enable the Government to carry into effect the wishes of the Honorable Court in respect to all Zoological and Entomological Collections deposited in their Museum on the part of Government, or by persons conducting Missions on the part of the Government.

Resolved—That the papers be referred to the Officiating Curator for his Report.

Read a letter from Professor WILSON, of 12th October 1840, offering copy of two Lectures by him, on the religious belief and practices of the Hindoos.

Read a letter of 16th May 1840, from the Secretary to the Society of Antiquaries of London, forwarding the 28th vol. of Archeologia, for the use of the Library of the Society.

Read a letter from the late Lieut. W. LOVEDAY to Lieut. Col. STACY, with a sketch by the deceased of the Etawah Chuttree (in the vicinity of Neemuch) and copy of the inscription found there.

Lieut. LOVEDAY writes, "I have but little to add by way of information, merely that returning one day from shooting, wearied and unsuccessful, I was much struck with the elegant appearance of this Chuttree; and resting under its shade, examined with surprize, and no little gratification, the elaborate sculpture of the pillars, of one of which I send you a separate sketch; the date of the inscription (Sumbut 1130) caught my eye, when I immediately transcribed the whole. I do not send you a translation, as the Devee Nagree is clear and easily read, with the exception of two or three words, which our Calcutta friends will soon rectify. The inscription is on an upright stone slab, on the top of which are sculptured in alto-relievo, eight figures, representing the Rajah and his seven wives, to whose memory the edifice has been raised."

Read a letter, dated Cabool 24th December 1840, from Capt. W. E. HAY, reporting the loss of the whole of his fossil shells (sketches of which he had furnished) on the retreat of the Shah's 4th Infantry from Bajgah, together with many other valuable collections of coins and geological specimens, and all his drawings. Captain HAY adds, however, that he had accumulated a number of others from Bokhara, Samerkand, Balkh, &c. enclosing at the same time, some impressions of apparently ancient Hindoo coins.

Read a letter from Lieut. Alex. Murray MACGREGOR, of 31st January 1841, with casts of coins intaglio.

He writes "I have sent cast of a Jupiter seated on a throne, holding a Minerva on the palm of his right hand, a sceptre occupies his left, and the Eagle is seated by his right foot; it is an intaglio found at Rome, during some excavations there, and given to me by a gentleman lately arrived from Europe, viâ Rome and Naples. The other is an *Ibex* of the Alps, found at Pompeii by the same person. Both are cut out of cinnamon-coloured agate, or perhaps a species of ruby, for it partakes of both, though more of an agate. The Cupid I found last February at Kanoje; it likewise is on a cinnamon-coloured agate, but does not seem a very well cut gem. I cannot find the gold coin mentioned in any of the Prinsep Plates. One of the casts is of a silver penny of George III; curious only in not now being a current coin."

Read a letter from Lieut. H. Combe of 12th December 1840, forwarding a drawing of a coin in his possession for my information, with reference to the letters marked thereon. On the coin are figures; that with the spear is evidently male, with a glory round the head, the other with a crescent is a female. On the obverse is a male figure naked to the waist, with a fanciful tail.

The Secretary informed the Meeting that the subjects of the four foregoing communications would be noticed in the Asiatic Journal more fully, with lithographed drawings of the sketches by Lieut. Loveday, and of the impressions of such of the coins as have not been already noticed.

The Secretary noticed the presentation by D. McFarlan, Esq. of a handsome stained window-glass.

Read a note by the Secretary, with an estimate of charges for preparing coloured lithographed copies of the late Dr. Lord's Zoological Sketches of Cabool, and suggesting the reference of the choice of sketches to be published to a Sub-Committee, whom the President would request to undertake that duty, in communication with the Curator of the Society.

Dr. Huffnagle and Dr. Spry were selected by the President to form the Committee, and on the motion of Professor O'Shaughnessy, the name of Dr. Pearson was added. To the discretion of these gentlemen, was left the sketches to be selected for publication. On the motion of Professor O'Shaughnessy, seconded by the President, Dr. Pearson's name was also added to the Committee of Papers, to supply a vacancy.

Read a letter of 18th May, 1840 (of which the following is a copy) from Professor D. Forbes, of King's College.

To the Secretary of the Asiatic Society of Bengal.

Sir, *London*, 8 *Alfred Street, Bedford Square,* 18*th May* 1840.

I should not have deemed the accompanying trifling essays of sufficient importance to be offered to your Society, were it not that a *complete copy* of the *Jámi al tawáríkh* has been just discovered among the MSS. of the India House. It is a copy of the original Persian, transcribed A.H. 1081 and 1082, and belonged to the celebrated DR. LEYDEN. It contains the whole of the author's Historical Works except the lives of Ghâzân Khân and Uljayto Khân, which may be considered biographical rather than historical. I have now the volume before me, through the kindness of Professor WILSON, who for many years was the ornament of your Society. Of this precious work, I am now engaged in drawing up an abstract for the next number of our Journal. The accompanying letter which appeared in our last number refers to the Arabic version of the work, which unfortunately is incomplete; perhaps by the exertions of your Society the lost fragments may yet be recovered, and I venture to say that we have still public spirit enough among us to publish this second volume both in Persian and Arabic if procurable. You have of course received Quatremeré's magnificent volume on the life and reign of *Hulagon Khan.* The portion of the author's works which we wish to publish, would be infinitely more interesting, particularly the histories of *China, India,* and the *Franks,* all of which are perfect in the Persian volume now before me, though none of them is quite complete in the Arabic. Should your Society be in possession of either the Persian or Arabic, would you kindly inform me of the same, and oblige, Yours obediently,

D. FORBES.

A letter, read at a late Meeting of the Royal Asiatic Society of Great Britain and Ireland, on the recovery of a (supposed) lost volume of the *Jâmi al Tawârikh* of *Rashidud-din.*

P. S.—Since the above letter was printed in the Society's Journal; a complete copy of *the Jámi al tawárikh* in Persian has been found in the *Leyden* collection of MSS. now in the East India House Library. An analysis of this rare volume will appear in the next number of the Society's Journal.

D. FORBES.

8 ALFRED STREET,
18*th May*, 1840

'*Letter of Professor Forbes, on the Recovery of a lost portion of the Jámi al Tawárikh.*

'SIR,

'Mr. W. MORLEY has kindly presented to me a copy of his interesting letter addressed to Major-General Briggs, respecting the portion of the *Jámi al Tawárikh,* now in the Society's Library. About the time when MR. MORLEY's communication was passing through the press, I accidentally fell in with a much larger portion of the *Jámi al Tawárikh,* comprising one half the original volume, of which the Society's fragment forms about one-fifth. The two fragments have been clearly proved (as you will perceive hereafter) to be parts of the same grand original; and it is curious enough, that after many years, perhaps centuries of separation, they should have at last met in a portion of the earth so remote from their native city.

'That portion of the *Jámi al Tawárikh,* which forms the subject of the present hasty and imperfect communication, belonged to the late Colonel John Baillie, a distinguished member of the Asiatic Society. Shortly after the death of that eminent Orientalist, his house in town was let, and his books and manuscripts were temporarily removed to the house of a friend in Soho Square, previous to their being conveyed to the family estate in Inverness-shire.* They have remained however undisturbed in Soho Square ever since. A few weeks ago I happened to have a pupil who lived in the same house, and from his description of some of the MSS. I felt and expressed my wishes to see them, in which request I was most readily indulged.

'The first, indeed I may say the only, work that caught my attention was a large Arabic manuscript of a historical nature, written in a beautiful and very old Naskhi hand, with many pictures very creditably executed, all things considered. On the back of this rare volume is written in a distinct Persian hand "Táríkh i Tabarí," and as if this were not sufficient, there is a note written in Persian, on a blank page, folio 154, of which the following is a literal translation—"The name of this book is *The Táríkh i Tabarí,* (the History or Chronicle of Tabari,) the author's autograph. The whole number of leaves when complete, amounted to 303; now however, some one has stolen and carried off one half of it, or about 150 leaves. It was written by the author's own hand, in the year of the Hegira 706 (A. D. 1306-7)."

'The information intended to be conveyed in this note, is, unfortunately rendered very suspicious, by the date given in the conclusion; as Tabari had flourished some 450 lunar years earlier. On examining the work itself, I found that the Muhammedan history came down to the last of the Khalífas of Bagdad; hence it could not be the original Tabarí. As D'Herbelot, however, has mentioned two writers who have continued the history of Tabarí down to their own times, I thought this might possibly be one of them, and in order to verify the circumstance, I took the Persian version with me next day to compare them; but after making the most liberal allowance for the freedom generally used by Oriental translators, I found that the two could never have been intended for the same work.

'Resolved, if possible, to arrive at some satisfactory conclusion respecting the MS., I requested a very intelligent native† of India to accompany me to see it. The moment this gentleman looked at it, he told me that whether it was Tabarí or not, he had seen the identical book some months back in a house where he visited. On further inquiry, I learned that the book to which he alluded belonged to the Asiatic Society. Next day I examined the Society's MS. and found, as I had concluded, that it forms part of the *half* that is missing in Colonel Baillie's MS. In proof of this, I may mention that the ink and the handwriting are the same in both. The length and breadth and number of lines in each page are the same, and the paintings are in the same style in both. The works had been numbered originally by leaves or folia, as is usual in Oriental MS.; these numbers still remain on the second page of each leaf, and every leaf of the Society's fragment is missing in Colonel Baillie's work. There is no question then, that as Sádi hath it, "they are limbs of one another," for assuredly they originally consisted of but one work.

'Colonel Baillie's MS. contains at present 151 folia or leaves, being as nearly as possible one half the original number, as stated in the Persian note. The last leaf is numbered 218, so that sixty-seven leaves are wanting to complete the work from the beginning to the last leaf now remaining. Of these, there are seven leaves in the Society's fragment on the history of Muhammad. They are numbered (in their order) 57, 58, 63, 64, 66, 70, and 74, all of which are, of course, missing in Colonel Baillie's MS. If these seven leaves were restored to their places in Colonel

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* Colonel Baillie's Books and Manuscripts are entailed property.

† Mír Afzal Ali, Vakíl from the Mahárój of Satára.

B.'s MS. and the remainder of the Society's fragment subjoined, they would altogether form a volume of 210 folia, there being still a deficiency of ninety-three leaves. This goes on the supposition that the number originally consisted of 303 leaves, as stated in the Persian note.

The contents of Colonel Baillie's MS. may be conveniently classed under three distinct heads.

‘1st. From the commencement to folio 41.

‘This portion of the work is perfect, with the exception of the first and second leaves; but the loss of these is greatly to be lamented, as they may have contained a general account of the whole volume, and an outline of its contents. This part is occupied with the history of Persia and Arabia from the earliest times down to the birth of Muhammad. At the same time the author has inserted, apparently in chronological order, copious accounts of the patriarchs and prophets of the Old Testament; also of Alexander the Great and his successors.

‘2nd. From folio 41 to folio 154.

‘This portion commences with the genealogy and birth of Muhammad. It then gives a minute account of his life, and the history of his successors down to the capture of Bagdad by Húlakú Khân, A.H. 654—A.D. 1256. This part of the work is strictly confined to the history of Muhammad and the Khalífas, the events of each year being detailed separately, with the date prefixed. In this division there are missing altogether forty-six leaves; but by replacing the seven leaves already mentioned as contained in the Society's MS., the lacuna will be reduced to thirty-nine, the greater part of which occurs between folios 70 and 107 inclusive, which treats of the history of the early Khalífas. From folio 107 to 154 there is no hiatus.

‘3rd. From folio 154 to 217.

‘The third part treats of the history of Persia under the Ghaznavi, the Saljúki, and the Atabeg dynasties. Like the first, it is of a somewhat miscellaneous character: the history of Persia is its leading feature. At the same time the author notices, in chronological order, such illustrious personages and remarkable events as came within his knowledge among other nations, particularly among the Christians. In this portion there are nineteen leaves missing, and these being towards the end, I cannot say how far the history extends—probably to the author's own times.

‘Folios 217 and 218, (the last in the volume,) are occupied with the history of the kings of Kh'árizm. How much of the original volume this subject occupied is uncertain. From 219 to 248 inclusive, there is a breach which, for the present, we cannot repair. At folio 249 the Society's MS. commences the history of Khata, and proceeds uninterruptedly to folio 300, *if* we could put faith in numbers, of which more hereafter.

‘Supposing then the two MSS. were re-united, there would still be *at least* the following deficiency :—

	Fol.
In Part 1st, containing the preface, &c.	2
In —— 2nd, Muhammad and the early Khalífas, ...	39
In —— 3rd, the latter history of Persia, &c.	19
Between fol. 219 and 248 inclusive, (subject uncertain)	30
Folia 301, 302, and 303, at the end	3
Total	93

'I have reason to suspect, however, that the volume consisted originally of more than 303 leaves. In the Society's MS. there is a lacuna of some leaves in the life of Shakmuni, while the numbers of the folia proceed without any interruption. This can be accounted for on the supposition that the folia were numbered some time after the work was written, but previous to its present dismemberment; and it will be perceived that the ink used in the numbers differs considerably from that of the text. The person who wrote the numbers may have known as little about the nature and contents of the work as the writer of the Persian note, who called it The History of Tabarí; and hence, I should think, arose the mistake.

'I have no means of ascertaining in what part of India Colonel Baillie procured his MS., but I should say, most probably at Lakhnau, where he was long resident. That the Society's fragment came from that quarter, within the last fifteen or sixteen years, can be easily proved. There is a duplicate of the life of Shakmuni in the Society's Library, transcribed at Deví, a village or district of Lakhnau, in May, 1823*. That this was done from the Society's original is all but certain, for the same hiatus occurs in the copy as in the original. The transcriber there mentions, in a note, that "there is *one* leaf missing (in the original);" but I am afraid, if we judge from circumstances, that *ten* leaves would have been nearer the mark. In the life of Shakmuni there are twenty-one sections, of which about ten are lost (from the seventh to the seventeenth). Each section before and after the last part occupies at an average a single leaf. I cannot believe, then, that the ten lost sections could have been comprised in one leaf, particularly as what remains of the seventeenth section alone occupies a leaf and half a page. It is not unlikely, then, that there may be other lacunæ which may have escaped the notice of the person who numbered the leaves—a point which can be ascertained only by a careful perusal of the work itself.

'Should this brief account be deemed worthy of insertion in the Journal of the Asiatic Society, (perhaps, in company with Mr. Morley's more ample communication,) it may prove the means of exciting our numerous Orientalists in India to make inquiries for the remaining fragments of this rare volume.

'There is every reason to suppose that both the portions of the work now in London, came from Lakhnau; and in that quarter it is probable the rest may yet be recovered. Mr. Morley has given an accurate fac-simile of a portion of folio 74, and I may add, that where no breaks occur, each page contains thirty-five of such lines. Finally, such numbers as I have stated to be missing, will, most probably, have remained on the leaves of the lost fragments, which may thus be easily identified.

'Nearly two years ago I had the honour of requesting the attention of the Society to some rare Oriental works mentioned in a Persian catalogue of the library of Farzáda Kulí, or some such name. In the historical department of that catalogue, one of the first books entered is, "*The Chronicle of Tabari*, the author's autograph, in the Arabic language, with *seventy* pictures of Saints, his Eminence the Prophet, and sundry kings, very rare." Now I strongly suspect that the work here described, is none other than Colonel Baillie's MS. of the *Jámi al Tawárikh*. The number of pictures in Col. Baillie's half, is really *seventy*, and among these is a protraiture of Muhammad. The writer of the catalogue received the work as he found it marked on the back, and in the Persian note, folio 154, without troubling his head about its contents. What renders this supposition still more probable is, that the *Jámi al Tawárikh* is not mentioned in the catalogue as one of Farzáda Kuli's books. Upon the whole then, there is good reason to infer that Colonel Baillie's MS. some forty years back, was one of the many rare works described in the catalogue of Farzáda Kuli's library; and if that treasure be not ere now dispersed, I should suggest that search should be made for it in the kingdom of Oude.

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* Vide Mr Morley's Note, page 23.

'Before I conclude these hasty remarks, I cannot help observing that the *Jámi al Tawárikh* does not seem so very scarce a book among eastern writers,* as M. de Quatremere would lead us to suppose. It is inferred, for instance, that Mirkhond and Khondemír were either ignorant of its existence, or borrowed from it without acknowledgment. Now the fact is, that Mirkhond, in the preface to the ***Rozat-al-saffa***, mentions this very work as one of the sources to which he was indebted for his materials. His words are,† "Kh'ája Rashíd tabíb, sáhib-i Jámi, that is, Khája Rashíd, the physician, author of the *Jámi*," i. e, *The Collection*, or *Universal History*. Of Khondemír, I do not happen to possess a copy, but at all events, there can be no reason to suppose that he was ignorant of the *Jámi*, as he *must* have read the works of his immediate predecessor, Mirkhond. It would be endless, as well as useless, to mention other writers who allude to the *Jámi al Tawárikh*. In the introduction to the fourth volume of the *Kímiya-e-Sa'ádat*, the author expresses his obligations to the *Jámi al Tawárikh*, of Kh'ája Rashid, the wazír. Even the very thieves who stole the Society's fragment out of the volume now in possession of Colonel Baillie's successor, seemed to have very well known what they were about, for the fragment is marked, "*az Jámi al Tawárikh,*" i.e. out of the *Collection of Histories*.

'In the Society's MS., No. 14, already alluded to as being a duplicate of the old fragment of the life of Shakmuni, there is prefixed (in Persian) an account of the author and his works, of which, as it is not long, a translation is here subjoined. "It is well known that the *Jámi al Tawárikh*, compiled by Kh'ája Rashíd al-dín, contains a history of the whole world, both as regards the lives of the prophets, and the manners and conduct of the kings of every region. In the same work the writer hath also given a sketch of the history of India; for he had learned something of the tenents of the sages of that country from (competent) people, and part (of his information) he had from the book of Abul ríhán Birúní, who having frequently travelled to India in the service of Sultan Mahmúd, the son of Sabactagin, had held intercourse with the sages of that country. After he had made thorough proficiency in the science of the Indian philosophers, he translated, from the Indian language into the Arabic tongue, the book of Patankal, or Patanjal, which is a collection of all the sciences, and one of the most valuable works of the sages of Hind, (like the *Kitab i Shaffa*, by Shaikh al-rasi.) It contains an account of all their various sects, and the history of their ancient kings, also the life of Shakmuni, who according to their opinion, and the testimony of Kamakshari al Bakhshí al Kashmírí, is the guiding prophet of the people of Hind and Khatá. To this work he gave the name of *Patanjal*, a copy of which he carried away with him.

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* It has been suggested to me, that the *Jámi al Tawárikh*, alluded to by Mirkhond, &c., refers only to the *Taríkh i Gházání*, or first volume, but not to the last three. I must say, however, that I cannot perceive why these writers should have so misapplied the term *Collection of Histories*, to the history of a particular nation, which, besides, had a separate title of its own. I may further mention that, in a MS. in my possession, entitled *Majma al Gharáib*, the *Jámi al Tawárikh* is quoted on a matter of chronology which is assuredly from the latter volumes, stating that, "from the fall of Adam to the birth of Muhammad there had elapsed 6102 years, six months, and ten days!"

† خواجه رشید طبیب صاحب جامع

"Since the history and actions of Shakmuni, who was once the prophet of the people of India, have, through the lapse of time, sunk into oblivion, I, the meanest of God's servants, Abd ul Kádir, resident of Devi, of Lakhnau, have transcribed the following account of him from the *Jámi al Tawárikh.* And, at the request of the high in dignity and rank, Major Herbert, I have made a translation of it into easy Persian. In certain parts the original was defective and obliterated; these defects, with their proposed corrections, I have marked on the margin. Deo soli scientia."

'I have nothing further to add respecting this rare and ancient work, except to express my regret that it has not been deposited in the Society's library, where it might be accessible to Oriental scholars. There may be other valuable MSS. in Colonel Baillie's collection, which I have not had time to examine; and I shall only mention here, a very fine copy of the *Mahábhárata*. It is beautifully written on one roll of fine paper, laid on cotton or silk, and abounds with well-executed paintings, representing most of the complicated events described in Hindu mythology. I believe it contains the whole work, as the writing is extremely small, though very distinct. The roll is about 220 feet long, and I should say from four to five inches wide within the margin, which is ornamented and illumined throughout.'

I am, Sir, yours faithfully,

D. Forbes.'

8, *Alfred-street, Bedford-square,*
26th October, 1839.

"P.S. In the preceding letter I have alluded to a Persian MS. in the Society's possession, entitled a *Catalogue of the Library of Farzáda Kuli.* This work is frequently quoted by my friend M. Garcin de Tassy, in his *Histoire de la Litterature Hindoui et Hindoustani*, lately published; for which reason I beg leave to subjoin the following extract from an account of it, which was read at one of the meetings of the Royal Asiatic Society in 1838.

"'The accompanying MS. is a catalogue of books in the Arabic, Persian, and Hindu languages, amounting, on a rough estimate, to upwards of 2,000 volumes. It is fairly written and well arranged, the works being classed under the different subjects of which they treat, as may be seen by referring to the second blank leaf at the beginning, where I have given an abstract of the contents.

"'Of the works here mentioned, many, I believe, are unknown, even by name in this country; but there is one in particular which merits attention, as it has been long given up for lost by the Orientalists of Europe. I allude to the *original Arabic text* of the *Chronicles of Tabari*, which is here described (p. 10) as follows:—'The Chronicles of Tabarí—*the Author's Autograph,* with seventy portraits of prophets, his Eminence the Apostle, and various princes, in the Arabic Language—RARE.'

"Here then it is evident that the original of *Tabari* existed (in all probability) in India within the last forty or fifty years. Unfortunately there is no date, nor name of person or place mentioned in the book, from which we could discover of whose library it is the catalogue. The last words are the writer's name, *Dávar Bakhsh,* a piece of information of no great consequence. On the first blank leaf some one has written, barbarously enough, in Roman characters*, what I believe is intended for Persian, and apparently signifies, 'A Catalogue of the Library of *Ferzada Kole ;*' but even this affords us very little enlightenment. I am led, however, to infer from circumstances—in the first place, that the book has been written within the last forty or fifty years; this is evident from its mentioning (p. 90) *the Diwán of Sauda,* a Hindustani poet, who died only a few years before the commencement of the present century. Secondly, it is a catalogue of the library of *some prince,* as may indeed be inferred from its extent, but still more from an expression that occurs in page 95, viz., 'A list of the books remaining in the old chest belonging to his August and Sublime Highness.' Thirdly, and lastly, there is every reason to infer, that the prince alluded to was Indian, from the number of Hindí books mentioned in the Catalogue, and in the list referring to the old chest aforesaid.

"'If the above inferences may be relied on, we have reason to hope that the original and genuine text of Tabarí, the Livy of Arabia, may yet be recovered It would seem that an ancient manuscript of it did lately exist in India, and is, in all probability, there still. As to its being the *autograph* of the author, I believe we are to take that expression 'cum grano salis' as we do the *originals* of Corregio and Rubens, &c., so very plentiful among picture-dealers and amateurs. But whether the MS. here alluded to, be, or be not, the author's own copy, is a question of minor importance. The main object is to rescue it, ere it be too late, from that state of obscurity in which it at present lies, and to that end I have been induced to lay this brief and imperfect notice of it before the members of the Asiatic Society. It is probable that some individual out of that learned body may be able to trace the history of the MS. catalogue here presented. The booksellers from whom I had it, could tell me nothing as to whence it came, or whose it had been.

"'It would be tedious to notice many of the rare works mentioned in the catalogue; there are a few, however, which I cannot pass over. In page 11, we have 'The Mustafa Náma, in the metre of the Shahnáma, containing the history of Persia (or rather of Islámism) from Muhammad to Tahmasp of the Sufí family, amounting to 104,000 couplets, beautifully written, and ornamented with gold dust.' Such is the literal translation of the description given of this stupendous work, which is very nearly *twice the size* of the Shahnáma, and embraces a period of about a thousand years.

"'Further on, among the works on Philosophy, Logic, and Rhetoric, are mentioned several pieces translated from Aristotle, Plato, and other wise men of Greece, all of which are highly interesting. There is also a Persian translation of the Makámát of Haríri, which would be invaluable in explaining many passages of that learned, but, to us, obscure writer.'

"To the above remarks, written nearly two years ago, I must now add my altered belief that the *Tarikh i Tabari,* mentioned in the catalogue, is nothing else than Colonel Baillie's MS. of the *Jámi al Tawárikh.* This I infer from the identity of the description given of both, and, above all, from the number of pictures agreeing in both. The doubts which I might feel as to the genuineness of Tabari's autograph, do not apply to the *Jámi al Tawárikh*. Tabarí lived a thousand years ago; and Rashíd al Dín finished his history only as far back as a little more than half that period. That the *Jámi al Tawárikh* is really and truly what it purports to be, viz, the author's own copy, written under his own inspection, I have not the least reason to doubt, as I have seen manuscripts of an older date in as good a state of preservation. Should any of your readers feel sceptical on this point, they may easily satisfy themselves by carefully examining the hand-writing and paper, and comparing the same with others of the corresponding era."

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* It runs thus,—*Fertsht Khootab Khaona Ferzada Kole.*

D. F.

The Secretary noticed that he had made inquiries through friends in the North-Western Provinces to procure a copy of this highly valuable work, and had intimation of the existence of a copy of the 1st vol. in Arabic said to be at Lahore. He however believed that his correspondent (a native bookseller at Delhi) possessed the work himself. He had made some exertions to ascertain the condition of the volume, which he subsequently gave up.

The Secretary communicated the intelligence of the discovery of papers of value among certain MSS. volumes which were deposited with the late Mr. JAMES PRINSEP's books at the Society's Rooms. They consisted chiefly of MSS. of Capt. Herbert, the greater part of which were notes Astronomical, Chemical, and Geological, together with results of his Himalaya Survey, observations which was thought not to have been published. At any rate it was incumbent on the Society, thought the Secretary, to examine these papers carefully by a Sub-Committee; agreeably to that suggestion, Major FORBES, Professor O'SHAUGHNESSY, and Lieut. BROOME were requested to afford their valuable aid on the occasion. The Secretary further reported that among some old records of the Physical Class, Asiatic Society, were found several Catalogues of Minerals in the Museum, supposed to have been lost, of the collections by Coulthard, Rose, Streave, &c. &c.

The Secretary reported to the Meeting that some months ago he had communicated with MR. W. C. HURRY, on the subject of a Chinese Dictionary compiling by the REV. J. M. CALLERY, and that he had requested from that gentleman certain documents connected with the undertaking. These were now received, and submitted. It was resolved, that these should be referred to the Committee of Papers for consideration and report.

Read letter from MR. J. AVDALL, of the 5th March 1841, forwarding for presentation to the Asiatic Society, a copy of his "Victoria Spelling Book," in Armenian, divided into two parts, and embellished with 24 engravings.

Read the following report submitted by the Officiating Curator for the month of February last;—

"H. W. TORRENS, ESQ.

Secretary Asiatic Society.

"Sir,

"I have the honour to submit as follows my report for the month of February.

"*Geological, Mineralogical, and Paleontological Departments.*—Proceeding at every spare moment, with Catalogues, of which a part are now at press : and with the numbering and arranging of collections.

"The two cases of specimens forwarded by the Honorable the Court of Directors, under the care of Captain TREMENHEERE, as a basis for a Museum of Economic Geology, have been imported, and their contents temporarily arranged; but before putting the labels we have to fit up the interior of two out of the three cases. Another case is wanting to exhibit this collection properly, and several others to contain the additions we can make to the Museum from the Society's collections and from donations, and for those expected from England. The report on this collection has been made and sent in to you.

"We have some valuable additions to these departments, which will be noticed in the account of additions to the Museum.

"*Mammclogical, Ornithological, and Osteological Departments.*—Several additions, which will be detailed at the conclusion. I beg to report that we can make up another box for the Honorable the Court of Directors; it will consist nearly as follows :—

"1. Skeleton of a Fox (Indian) prepared by us

"2. A small box of fresh-water shells, being part of a collection presented by Mr. Stocqueler.

"3 { 50 Skins of Birds,
2 Sculls with horns,
5 Horns,
8 Fishes of the Indus, } Duplicates from Sir A. BURNES' Collection

"I may suggest here that we point out to the Curator of the Museum of the Court of Directors, the great facility with which, if approved of by the Court, he might procure, in exchange for such specimens as he already possesses, some of the many which we require for the Museum of Economic Geology. It is scarcely possible to send home a skin of a bird, a skeleton, or a scull from India for which some duplicate may not be obtained in exchange, which would be of utility to us here.

"Three large cases of specimens have been sent down by Mr. CLARKE, Political Agent at Umballa, which upon examination prove to be the collections made by SIR A. BURNES, on his mission to Scinde, to which many of his drawings now in the hands of the lithographers relate. They seem unfortunately to have remained for the whole time without any care whatsoever, and many are wholly destroyed !

"Mr. Clarke informs us that the collection has been inspected by Dr. JAMESON, who has promised a report upon it. The contents of the chests were as follows :—

Birds.—retained for the Museum, ...	19
——— duplicates, to be sent home, ...	50
——— rotten, and thrown away, ...	22
Total,	91

Sculls with Horns.—for the Museum,	1
——— duplicates, for sending home,	6
Total,	7

Horns.—for the Museum,	2
——— duplicates, for sending home,	5
Total,	7

Fish.—for the Museum,	1
——— duplicates for sending home,	8
Total,	9

Porpoise scull, Alligator, Iguana, Lizard, Turtle, &c. altogether.	7
Snakes in spirits of wine, rotten and thrown away.	13
Skins of animals rotten and thrown away.	8

N. B. Claws and beaks of birds, and sculls of animals, preserved when worth doing so.

Fish Reptiles &c.— Nothing more to report.

"*Donations.*— Have been numerous and important. I have already noticed Sir A. Burnes' collection, to which we have to add the following:—

Dr. Spilsbury—a chest of Fossil bones from the Nerbudda.

Col. Macleod—two boxes, being series of geological specimens collected by the late Captain Pemberton on his mission to Bootan. No catalogue with them.

H. Piddington, *Acting Curator.*—A collection of Cotton, Coffee, Sugar, Tobacco, and Tea soils, &c. from India, Mauritius, United States, Singapore, &c. many of them analysed. 7 Specimens of Burdwan Iron ores analysed. Specimens of the earths used in the curious glazing of native Sugar-pans.

G. Ewbank, Esq.—A young panther. Skeleton for the Museum.

Mr. D. E. Rodrigues.—A pink-headed Duck, Fuligula caryophillacea—Museum.

Mr. H. P. Vierre.—A Snipe, Scolopax—? Museum.

Purchased.—2 Wild Geese, Anas indica or black-hooded Goose. 1 Skeleton; 1 stuffed,—Museum.

I have the honor to be, Sir,

Your obedient servant,

H. PIDDINGTON,

Actg. Curator, As. Soc. Museum.

Calcutta,

1*st March,* 1840.

The Society having been requested by Government, by a letter from Mr. Secretary Bushby of the 3rd February last, to submit a report of their Curator on the specimens brought by Captain Tremenheere, and deposited with the Society for the basis of a Museum of Economic Geology, and in what manner they were of opinion additions to the present collection may most usefully be made to it—Read the following report from Mr. H. Piddington, dated 26th February, 1841.

H. TORRENS, ESQ.
Secretary, Asiatic Society.

Sir,

In obedience to the commands of the Right Honorable the Governor General in Council, conveyed in Mr. Secretary BUSHBY's letter to you, under date 3rd February, I have now the honor to submit my report on the collection brought out by Captain TREMENHEERE, as a basis for the proposed Museum of Economic Geology. I should state perhaps, that Mr. BUSHBY's letter only reached me on the 10th instant, and that I have also been delayed by the necessity of referring to Captain TREMENHEERE's Memorandum, which I have only this day obtained from Bishop's College Press. I have incorporated with the report, my views as to the additions which may most usefully be made to the Museum, and as to the manner in which these may be best obtained. I remark, that the Society in general is referred to on these points, but as my ideas relative to them are necessarily connected with the facts and views comprised in the report, I have thought that I might, without presumption, and even with some convenience, as to perusal, combine them in one statement.

I.—The collection brought out by Captain TREMENHEERE, is a valuable basis for a Museum of Economic Geology, but it should be borne in mind, first, that it is only a commencement; and next, that it is almost a purely English collection. The little we yet know of Indian Geology has taught us that, on many points, there are wide differences from the received systems at home, extending even to the absence, or great rarity, of whole formations, and the presence of others which have no known corresponding types in Europe, or indeed in any part of the world; and it is quite possible that her mineralogy, when better known, may also produce its novelties. Hence we require,—if we wish to render our proposed Museum complete, as a light to the acquisition of existing knowledge, and a guide to future research, and this more especially in an economic point of view—a complete English and foreign series of specimens, by which the student and speculator may well understand their systems and processes, and a complete Indian one, fully to comprehend and avail ourselves of our own. I mention this in the first place, that I may not appear desirous of embracing too much, or to be remarking in any spirit of depreciation upon what the liberality of the Honorable the Court of Directors and the Government of India have allotted to the Society.

II. *Coal.*—The present collection comprises 51 specimens of coal and anthracite, from various coal fields. Those from several other English coal fields, as I learn from Captain TREMENHEERE's report, are to be sent out. To these I suggest should be added specimens from the Scotch, and if possible from the French, Belgian, and American coal fields, with a series of specimens from each, illustrating also the coal formations and pseudo-coal formations; as for instance, that of Brora in Sutherlandshire. As we improve our mining systems and our mining knowledge, we shall probably obtain better coal.* We require also a set of sections of the coal measures of different districts. These are not always published, but many of those which are not so may perhaps be obtained for us by the Honorable Court, through Mr. De la Beche, or by the efforts of members and friends of the Society through their connections at home.

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* It may be perhaps doubted if our Indian coal has yet had fair play! The amount of our experiments as yet seems to have been, the burning of Indian and English Coal upon grates and in furnaces made for the latter, and then to pronounce the Indian coal as inferior! It is so no doubt, but it *might* produce far better results in grates and in furnaces adapted to it, on the principle that every kind of coal requires a different arrangement of these, to produce its maximum effect. This remark is not perhaps exactly in place here, but the importance of the subject may excuse its introduction.

I allude to American specimens here, and shall have occasion to do so again in the course of this report, because there are peculiarities connected with the Geology of both North and South America, which render every light obtainable from those countries of the greatest interest to us. The use of anthracite in metrallurgical operations, is but recent in England, and I am not aware that it has yet [illegible] used there for steamers, though the Americans are said to use it very extensively in their steam-boats. Models of all kinds of anthracite furnaces are an object of much importance to India, where this combustible is so often found.

III. *Iron Ores and Smeltings.*—The collection comprises about forty specimens of iron ores, their lodes, smeltings, and slags. We must recollect, in relation to this most important metal, in which India is so rich, that a considerable portion of the Indian ores of it, are varieties of the black or *protoxided* class, as magnetic iron-ore, titaniferous iron-sand, iron, glance, &c. though we have, as in Burdwan, and many other places plenty of the other kinds, of the finest quality, while the majority of the English wrought ores belong to the Red and Brown, or *peroxided* and carbonated classes. Again: the whole system of English iron-smelting in the present day is one of smelting by coke; whereas the finest European irons, as the Swedish, Biscayan, Catalonian, some of the German, and all our fine Indian irons, are made by the charcoal process. Many of our rich ores are moreover situated where wood is abundant, and even a nuisance, and likely to be so for a long period of years; while coal (or coke) were it only from the want of roads, must be for a long time out of the question in such situations, to say nothing of the limestone.

Hence I should say, that it is a great desideratum in an Indian Museum, to possess specimens of the Spanish, Swedish, German, Corsican, Elbese, Pyreneean, and other ores of iron, of known fine qualities, worked by charcoal only, and often affording excellent iron at a single operation, as many of our simple native smeltings are known to do. As a guide to the Indian speculator, these ores, with descriptions or models of their furnaces, and full accounts of their processes (when these are not to be found in standard works of easy reference here) may be invaluable, as shewing him how to direct his efforts most advantageously and upon a scale, perhaps, better suited to his means than are the vast operations which the English iron-master, from the confined rates of profit, and excessive competition at home, finds indispensable. I may add in reference to this matter, that strange as it may appear to those unacquainted with the subject, there is scarcely any question of metallurgic chemistry upon which so little is known as that of the ores of iron!

IV. *Tin Ores.*—In this department the collection is very complete; from the lodes and ores, their roasting, stamping, washing, and smelting, down to the refuse of the furnaces. In a word, almost nothing is here wanting, and I embrace with pleasure this opportunity of saying that the mass of the specimens in all classes appears to be what may truly be called *working* specimens, as distinguished from the *show* specimens of the mineralogist's cabinets, and thus of much higher value for our purpose.

The Tin assortment consists of about 20 specimens of ores and lodes of various kinds, and of about 24 of the ore in various states of preparation, its smeltings, refuse, &c.

Tin is an ore little found except in England, or in the Eastern Islands, and Maláyan Peninsula (we know nothing of the Tin mines of Mawar or Ava) but with such additions as we shall be able to make to the collection, from specimens already in the Museum, we may consider it as tolerably complete with respect to this metal. The desiderata are—good accounts of the Saxon and Bohemian works, and ores, with specimens. Of the Chinese and Malay Tin smeltings of the Eastern Islands, with samples of their ores; and specially of their refuse or slags, which last are probably well worth examination. It is said that both silver and gold have been found in them; and there is a description of Tin brought from Borneo, which is sold to the Chinese at Sooloo, and other places, for exportation, at a very high price; this is said to contain one or both of the precious metals. For our Eastern provinces, the investigation of every fact of this kind is of high importance.

V. *Copper.*—The copper ores are about seventy in number. They are also mostly an English assortment, comprising only the ores most usually found and worked in England. Several of the Indian, Asiatic,* and American copper-ores now in the Museum, will form valuable additions to this series. Our desiderata here are however numerous, we require some of the continental ores of Europe, and a series from South America, especially of those which exhibit the mixtures (or combinations) of copper and silver, or copper and gold. We are promised, I observe, as with the tin ores, samples of the English ore in all the stages of its progress, from the mine till it leaves the smelting house, with its slags, which are so instructive to the working speculator. But we require these both from England, where the smelting of copper is a separate trade, and the poorest ores are turned to the best account, and where all is performed by coke; and also from such countries as South America, many parts of Germany, &c. where charcoal alone is used. It is evident that even under the most scientific management, the modes of smelting, as governed by the fuel, must greatly influence results. The preceding remarks (at p. 9.) on the fuel, which may be available in certain situations, fully apply to copper as to iron works.

VI. *Lead Ores.*—We have but nine of these (of but one or two varieties) in the collection; and these again, with one or two expections, of the commonest kinds. Every thing therefore is to be acquired in this department We can supply something as to Indian specimens from the Museum. The lead ores, independent of their value as lead, deserve high attention, particularly those of the argentiferous class, which in fact run into the silver ores, containing at times so much silver, as to render the lead of little or no importance.

VII. *Antimony, Manganese, Zinc, and Tellurium.*—We have in the collection but eight or ten specimens in all of the three first of these metals, though they are all of importance; we shall be able to supply a few from the Society's, but we may say pretty nearly, that every thing is wanting in this section. The Indian and Eastern ores of antimony are deserving of great attention, for none of them have been yet examined, and they are so commonly met with, that some will no doubt in the end be found to belong to the class of antimonial silver ores. I mention the auriferous Tellurium in the section on gold. Captain TREMENHEERE's paper announces, I observe, an assortment of ores and specimens relating to zinc and the manufacture of brass.

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* *Asiatic copper ores.* With reference to my remarks at pp. 4 & 5, I may mention here as a confirmation, that we have in Colonel Burney's collection of minerals from Ava, an ore of copper (with the same half-roasted from the Burmese workings) which is certainly not a common one, and perhaps new to the English miner at least.

VIII. *Silver.*—We have but three of these ores, but we shall be able to supply several South American, and other specimens, from the Society's collections. We require, however, series of the European and American silver ores with their lodes, preparations, and smeltings. I mention particularly here, the Mexican and Peruvian silver ores, because some of them would, from their earthy appearance, and the small proportion of metal they contain, be passed by as mere red earthy soils or iron ores, which in fact they are. Some of these ores are from the staples of some of the great mines of Mexico and Peru, and it may be possible, that we have also deposits of these ores on the flanks of the Western Ghauts; or in other situations of which the geological features approach to those of South America, though upon a smaller scale.

"IX. *Gold.*—There are no ores of this metal in the collection, and but very few in the Museum. It is indeed generally obtained from washings, but it is of importance to us to have specimens of all its ores, particularly of the auriferous iron ores, and of the telluretted gold ores of Hungary, which so much approach those of antimony. We require also the alluvial and diluvial soils in which gold is found; and especially drawings or models of the American washing-frames, which are so extensively used at the gold-washings of Virginia, Georgia, and the Carolinas. These are cheap and effective, and perform so much work in a day, that many tracts which had formerly been abandoned by the gold-washers as too poor, have been washed over again to a good profit. It is evident that this is what is required for the gold-washings of Southern India, (and for the auriferous sands of our rivers, where labour, though cheap, is *made* dear by being applied in the expensive and wasteful process of hand-washings.

"X. *Quicksilver.*—There are no ores of quicksilver in the collection. We shall perhaps be able to supply one or two, but this metal is both so important as an article of commerce, and as an agent in the separation of the precious metals by amalgamation, that we should by all means obtain an assortment of its few ores, and specimens of the deposits in which they occur, from Spain, Idria, and South America. We shall not I hope be thought too sanguine if we hope that when the numerous carboniferous deposits of India are better known and studied, mercury may be found. We know that it exists abundantly in Yunan, most probably in the formations in which it has always, hitherto been found, and it is therefore quite possible that it may be found on our Eastern (Assam or Cacher) frontier. Like silver, one or two of its known ores might easily be passed over. The metallic-looking ores of any mineral we know, are sure to attract attention; it is the rubbish-like, earthy-looking ones, therefore, which specially demand a place in a Museum of Instruction.

"XI. *Arsenic.*—We should not omit to collect all the ores and lodes of this metal which so much abounds in India and to the eastward. Independent of its value as an article of commerce, its frequent association with the precious metals may induce a hope that a careful examination of its ores might lead to some discoveries. It is probable that we are yet far from knowing all the combinations of this *Proteus* of the metals with others.

"XII. *Bismuth, Cobalt, Chrome,* and *Nickel.*—The ores, lodes, and every sort of information relative to these metals, should not be neglected. Some of these are but little known, and new ones it is possible may be discovered. The uses of some of them (Bismuth, Cobalt, and Nickel) are probably only limited by their prices, and what they, or other metals now almost considered as curiosities, might become, if more abundant, the history of Chrome fully testifies.

"XIII. *Alum, Soda, Borax, Amber.*—Specimens of the Alum-slates of Europe, of the Soda earths of Egypt and India, of the Borax and Boracic acids of Italy and Thibet, and of the Indian ambers, are also desiderata. In reference to one of these only, I may mention that I have ascertained that the soda earths of India may be purified and discoloured by a very simple process, and thus great tracts of land now barren and valueless, may yield *crops* as valuable as the barilla-fields of Spain, or the kelp-shores of Scotland.

"XIV. *Agricultural Geology.*—Captain TREMENHEERE's report adverts so ably to the now well recognised importance of this branch of the science, that no remarks of mine in this respect are necessary. The collection contains a few specimens of soils from Cornwall, but there are no labels or descriptions with them. Capt. TREMENHEERE informed me, that on account of his hurried departure, he was not able to find his notes, but hoped to be able to send them to me. I have had the pleasure of contributing, from my own cabinet of soils, about forty specimens of Cotton, Sugar, Tobacco, and Tea soils; many of which are analysed. These are from America, the Mauritius, Singapore, various parts of India, &c.; and I am advised by Mr. STIKEMAN, Secretary to the East India and China Association, that through the active assistance of Lord John RUSSELL and Sir John CAM HOBHOUSE, a chest of West India Sugar soils is now on its way to me on the ship "Lord Melbourne," for the purpose of comparative analysis with those of India and the Mauritius. A great desiderata here are Sugar soils from the valley of the Mississippi, and from Demerara; for it is evident, that for Bengal the analogy mainly to be looked for is that between soils forming, as here, the alluvion of rivers. The volcanic soils are more likely to prove guides for those of Central and Western India. It should be borne in mind that we require for India not only the soils for tropical productions, but those also for the productions of temperate climates. At this moment, for example, one of the most valuable acquisitions we could obtain, would be a few specimens of soils from the hop gardens of Kent and Sussex! as a guide to the gentlemen who are so zealously endeavouring to introduce that valuable plant.* In this department, then, nothing can come amiss to us; for we may always dispose most advantageously of every thing. I forbear, for the sake of brevity, entering into the list of what we principally require.

"XV. *Mineral Manures.*—The Mineral manures, from the peat of the jheels, so extensively used in India, to gypsum, which is now the main support of a large portion of the agriculture of the older American states, though its use is unknown here, should not be omitted in our collection. The kunkers of all kinds might, there is no doubt, be often available as a valuable manure, if their use as such was known.

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* Specimens of the soils of the best sheep-pastures from England, Germany, Spain, and particularly New South Wales, would be also valuable guides; for it is certain that the quality of wool depends as much on the soil as on the grasses.

"XVI. *Architectural Geology—Stones employed for Architectural or Engineering purposes ; Ornamental Stones, as Marbles, &c.*—Of these the collection contains but one or two specimens. We have many of cornices, capitals, and images, which would afford much instruction, though the antiquity of but very few of them can be known The conditions of climate here are so different from those of Europe, that it may be difficult to establish correct comparative views, though we need not on that account neglect European specimens, and the results of their experience. We require however, more especially, specimens of stones, bricks, and marbles from ancient Indian buildings and fortifications ; with, of course, the dates of their erections, when these can be ascertained. These it should be remembered are desirable both when they have well, and when ill withstood the effects of the climate ; for both are lessons to the architect. It should be carefully noted if they appear ever to have been protected by plaster, paint, or casing; specimens from more recent erections, particularly where exhibiting signs of early decay, should not be neglected. The tomb-stones of the early European settlements might perhaps afford good practical lessons in this respect. The church of Bandel bears, I think, the date of 1680, and it is possible that many tombs of at least a century old, might be found, either European or native, of various materials.

"The foregoing remarks hold good for the ornamental stones and marbles. Our Museum affords a very few of these, and a geological series of specimens from the sandstone quarries of Chunar, by Captain Franklin.

"XVII. *Mortars and Cements.*—We have nothing of this kind in the collection, nor in the Museum, as far as I have yet seen ; but the field which these afford for curious and profitable research, and the great public and private advantage to be derived from a thorough investigation of it, is immense. It would appear that many of the native cements of former times were, like those of the ancient Romans, even more durable than the brick or stone with which they were used, and very far superior to any thing which can now be made, even with the greatest care. It is then, well worth our attention to procure also from the ancient buildings, both of India and Europe, specimens of the mortars and cements. All the limestones which can be obtained, from the kunkurs up to the pure marbles, are of course desiderata, as being the raw material of the cements. I should add to these, specimens of the corals, and of the fresh and salt-water shells so extensively used for making lime in India. We are quite ignorant as yet of what may be the effect of mixing the shell and stone limes in various proportions ; of what is owing to the Silica alumina, and oxides of iron in the kunkurs, to the phosphates (from the shells or the iron of the kunkurs) and to all these with the various proportions of lime and magnesia, which form the bases of the cements. These are great objects of research, for which the first requisite is to have series of specimens at hand ; without which they must always be imperfectly examined, and most frequently will not be so at all.

"XVIII. *Materials for Road Making.*—These, I need not say, are of primary importance. It is true that expence frequently prevents their being carried far, though sometimes a road may carry the materials for its own extension. But there is another point of view in which the collection of both good and bad materials for road-making may be important, when the subject comes to be scientifically considered. I mean that of the *combinations* of the different materials to be found at hand, or made at a small expence;—thus, we know that throughout the great basaltic district of India the elements of the Puzzolanas are every where found. We know that durable roads have been constructed of volcanic materials. We know that minute proportions of ferruginous or calcareous matters have often extraordinary effects in consolidating earthy materials. But of what is available, or how it should be used, in any given part of the country, we are totally ignorant. It is evident that Indian road-making requires, if possible, more than the careful aggregation of materials to resist the torrents of the rains, and the heats of the dry weather. It is probable that it is yet a science to be *created* between the chemist and the engineer.*

" XIX. *Plastic Geology.—Clays and earths for pottery and other manufactures.*—Of these we have none in the collection, and none, particularly so described in the Museum. Our first requisites are series of the English and other European pottery-clays, and of those from China, if obtainable. The scouring and pigment earths, and fire clays, of all kinds, are also required. Very good fire clays are found in Burdwan, Rajmahl, and near Moorshedabad. I have been able to contribute specimens of the earths used in the curious red varnish of the native sugar-pans, which is of extraordinary durability.

" Apart from the improvement of our domestic manufactures, it is quite possible that some of our Indian clays may well pay for exportation.

" XX. With respect to how all these desiderata may be best obtained, the Society should, it is evident, first make known its wants, both in Europe and in India, by printing detailed memoranda, and offering exchanges where these can be desirable. From Europe we may doubtless count greatly upon the liberality of the Hon'ble the Court of Directors, and that of the many old and tried friends to India who seek but to know how they can best serve her. Scientific Institutions, and such associations as the Royal Agricultural Society† will no doubt be ready to meet our wishes. As a matter of purely commercial interest also, we must not forget to address the Chambers of Commerce, and the principal commercial houses connected with India both in England, on the Continent, and in America. There are doubtless many gentlemen amongst these who only desire to find individuals or public bodies ready to receive their suggestions and contributions, and assist their inquiries.

" In India we shall doubtless find many mercantile men, and members of the Services, ready to move their friends at home, or in various parts of India, in our behalf. To Capt. TREMENHEERE's suggestions of assistance from Officers and Assistants of the Revenue Surveys, I should add, that we may obtain much from the principal and subordinate Collectors of all ranks, the Civil Surgeons, Planters, &c. and I doubt not that it will be the pride of the Society to see justice done to their contributions.

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* The recent introduction of Asphatum as a material for roads and pavements will occur here as a case in point.

† I am not sure that this is the correct title of this body.

"The foregoing report will I fear be thought too long, though I have endeavoured, by abstaining almost wholly from explanatory notes and quotations in support of some of the views advanced, to make it as brief as possible. It will not I hope be forgotten how vast are the questions to which almost every paragraph of it leads. I have adverted in it, more than once to the high importance of the proposed Museum, in common with all institutions of the kind, as affording a ready access to much of what the student and speculator could not otherwise hope to obtain a sight of. I would farther remark, for this cannot be too well borne in mind, that in India we require, of necessity, *much more* assistance than in Europe, to prosecute successfully researches of this kind. We require this from the vast unexplored fields on all sides, and because the labourers in them are so few, and so liable to be interrupted by illness or change of residence, that, unless the objects of research are within their immediate reach, the mere time occupied in collecting them involves a thousand chances of fatal interruptions. We require it, moreover, because it so seldom occurs in India that the talent, the time, and the pecuniary means, are all found together. Those who have the time and the talent, lack the means; and those who have amply the means and the knowledge, can rarely afford the time, unless at the sacrifice of their health, of which we all know more than one melancholy examply. It is thus that so little has been done by the English in India in the way of researches of this kind, and that we have often, unjustly enough, borne the reproach of indifference or of ignorance. It is thus I would then respectfully urge, that we require far more assistance than in Europe, where, from the abundance of talent, means, disposable time, settled modes of life, great facilities of communication, and of reference; and almost perfect knowledge of every existing resource, the student or speculater has, so to say, a mere pastime, in comparison with the difficulties which beset him in India:—India! a field of research so vast, that no man can even guess the extent of it; and he would be a bold one who would venture to pronounce to what its investigation may not yet lead us."

Calcutta,
Asiatic Society's Rooms,
26th February, 1841.

I have the honor to be,
Sir,
Your obedient, humble Servant,
H. Piddington,
Actg. Curator As. Soc. Museum.

It was resolved—That a copy of this interesting document be forwarded to Mr. Secretary **Bushby**, for submission to the Right Honorable the Governor of Bengal.

The President noticed the presentation of the plan and section of the Ghaut about to be constructed to the memory of the late James **Prinsep**, Esq. by R. H. **Rattray**, Esq.

Resolved—That Mr. **Rattray** be thanked for the same, and that it be hung up in the rooms of the Asiatic Society, as requested by that gentleman.

For the presentations and contributions, the thanks of the Society were accorded.

JOURNAL

OF THE

ASIATIC SOCIETY.

The Galvanic Battery in its various Practical Applications as an Igniting Agent.—By Lieut. R. BAIRD SMITH, *Bengal Engineers.*

INTRODUCTORY REMARKS.

The dependence of the action of the Galvanic Battery on chemical principles, the excitation of that action by the employment of chemical agents, and the habit of considering the Battery as an instrument of scientific research rather than of practical utility, have tended, to a certain extent, to excite impressions unfavourable to its extensive applicability in engineering operations. Practical men naturally dread employing any agent of whose nature they are not thoroughly cognizant, and are therefore liable to be prejudiced against the Battery, by finding themselves unable to apprehend the rationale of its effects. To aid in the removal of such an impression, it may be remarked that an acquaintance with the theory of the Battery, is by no means essential to the comprehension of its mechanical details and applications, as a little experience would immediately prove. A few opportunities of observing the Battery in action, of noting the different manipulations, such as forming connections, apportioning solutions, &c. will, with common intelligence, enable any one to employ it independently. The remembrance of what has already been done, both at home and in this country, will also tend to remove any farther prejudice which may exist against the practical application of the Galvanic Battery.

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Having long been impressed with a sense of the great economical importance of the Battery in all the varied operations in which the explosive force of gunpowder is employed, and having had an excellent opportunity of becoming acquainted with its details during the progress of the demolition of the barque "Equitable," in which I had the pleasure of being employed under Capt. Fitzgerald, I was led to prepare this paper, in the hope of rendering the experience then attained, available to the fullest extent for the benefit of others under similar circumstances. After a considerable portion of it had been written, I learned that a pamphlet by Col. Pasley on the same subject was in course of publication, and I therefore immediately laid my paper aside. On receiving Col. Pasley's pamphlet, however, I found it was entirely confined to details of his own plans, and as experience had proved that these admitted of most material improvements and modifications, I conceived my paper might still be useful, and accordingly resumed and completed it. The original plan has been extended by the addition of a section "on the Theory of the Battery," in which the recently published views of Sir Michael Faraday on this long disputed point, have been briefly developed; and as his researches have entirely removed it from the domain of "doubtful knowledge," as he himself terms it, to that of inductive certainty, the addition may prove interesting to those who desire to understand the principles as well as the practical applications of the Galvanic Battery.

SECTION I.—*The Construction of the Galvanic Battery.*

The elementary form of the Galvanic Battery consists simply in the interposition, between two plates of different metals, (usually copper and zinc) of a fluid capable of exerting some action on one of these plates, while it has none, or at least a different one, on the other. A communication established between the plates, either by direct contact, or by the interposition of some conducting substance, then admits of the circulation of a current of Galvanic electricity.

It would be foreign to the design of this paper, to dwell upon the various combinations and modifications of the above elementary Battery, by which different compound circles have been formed; and information concerning these is the less called for, since all have been recently superseded by an arrangement due to Professor Daniel, in which the removal of the defects of former constructions has been accompanied by some most important and peculiar advantages. Of this alone, therefore, will the details be given, and as zinc is procurable in this country, both in the massive and laminar states, a simple modification of the constant Battery adapted for the use of each, will be described.

In the original form of the constant Battery in which the zinc is [Fig. I. a.] used in solid rods, the copper element consists of a cylinder of that metal in its thinest obtainable state. The cylinder is formed, as shewn in Fig. I, with a small collar, and to one side of it a small copper cup to contain mercury, or a clamp-screw socket for facilitating metallic connections throughout the Battery, is attached.

The zinc element is a rod of that metal, varying in diameter and [Fig. I. b.] length, according to the strength required for the Battery, perforated at one extremity by a thin piece of wood, which, on the zinc being inserted within the cylinder, rests on the collar, and prevents any direct contact of the two metals. The rod is usually amalgamated with mercury, as will subsequently be described, and its exterior end is made to terminate in a small mercurial connecting cup, or clamp-screw.

The principal objection to the earlier forms of the Battery arose from the rapidity with which the energy of their action was found to decline. On this being traced to the deposition of particles of reduced oxide of zinc on the copper plate, in consequence of certain chemical actions within the cell, its recurrence was prevented in the constant [Fig. I. c.] Battery by the interposition of a membranous partition beteen the two metals. This membrane is usually made of ox gullets, and is so constructed, as readily to fit on to the collar of the copper cylinder. Thus, then, the Battery when complete, with the exception of the solutions, consists, (1) of the copper cylinder; (2) of the membrane within this; and (3) of the zinc rod separated from the copper by the membrane. The dimensions vary according to the strength required for the Battery; that employed by Col. Pasley in his experiments in February 1839, consisted of 10 cylinders, 21 inches high, by 3½ ditto in diameter, with zinc rods one inch in diameter.

The modification of the constant Battery necessary for the employment of sheet zinc, consists simply in making the copper cells rectangular instead of cylindrical, and the adoption of this form is much accelerated by employing pasteboard instead of ox gullet partitions, a suggestion due to Dr. O'Shaughnessy of Calcutta. The details are as follow;—

1. The dimensions having been decided upon, a piece of sheet copper of [Fig II. a.] the proper size, is to be formed into a rectangular cell, the junctions of the side pieces and bottom being soldered with hard brass solder. As the power of a Battery is considerably augmented by bringing the opposite surfaces of copper as near as possible to each other, the edge and bottom pieces of the cell are usually very small in proportion to its sides. When the latter are 14″ or 15″ square, the former may conveniently be made half an inch in breadth. A small connecting tube, about an inch in depth, or a connecting screw soldered at the top of one of the edge pieces completes the copper element.

2. The partition cases are made of common strong brown pasteboard, [Fig. II. c.] two pieces of this being laid together, and their edges or three sides compressed between strips of teak wood, half an inch in breadth, 1-8th in thickness, the length being regulated by the dimensions of the copper cell into which the case should slide easily. Screw nails of copper, if such are to be obtained, but otherwise of iron, passed through the teak binders and the pasteboards, render the case water-tight at the edges, and complete its manufacture.

The zinc element consists of a piece of the sheet zinc of commerce [Fig. II. b.] (spelter) of such a size, as to admit of its readily passing inside the pasteboard case, and rounded off, as shown in the sketch. A thick copper wire is soldered to it, to facilitate the connections throughout the Battery, by dipping into the mercurial cups above described.

A Battery of this rectangular form was used in the destruction of the barque "Equitable," having side pieces 14″ × 14″, edge and bottom ditto ,, 14″ × 1″, pasteboard cases 13½″ × 13½″, and zinc plates 12″ × 12″, the number of cells employed being 12.

SECTION II.—*Of the Exciting Solutions for the Battery—their nature, preparation, and proportions.*

It has been found by experience that strong chemical action on the zinc of a Battery, with the interposition of a good conducting solution between the zinc and the copper, are the conditions by which powerful galvanic action is insured.

With the constant Battery, solutions are always employed in pairs, of which sulphate of copper invariably forms one, and sulphate of soda or dilute sulphuric acid, may be used indiscriminately as the other. A saturated solution of sulphate of copper, or blue stone, is prepared by adding this substance to boiling water till the water ceases to dissolve it, and then allowing the mixture to cool. Should any crystals of the blue stone be deposited during the cooling, it is a satisfactory proof that the solution is fully saturated; if no such deposit takes place it is advisable to add more of the salt to the water. A simple method of ascertaining, during the progress of preparation, whether the solution has reached the point of saturation, is to place a single drop on a piece of glass, and mark if minute crystals, or solid matter, are immediately deposited, if so, the addition of blue stone may be discontinued. The proper strength will readily however be estimated after a little experience from the intensity of the blue colour of the solution. A proportion of one part of blue stone to three parts of water by weight, has been found by experiment to be most effective, and a large copper cooking vessel is perhaps the best utensil for boiling the mixture in. The sulphate of copper is obtained in the bazaar under the name of "Nila tutiya," and at an expense of from five to seven annas per ℔.

The solution of sulphuric acid, or vitriol, hitherto employed in the cylindrical Battery, is made by mixing one part of strong acid with eight parts of water.

The solution of sulphate of soda, or Glauber's salts, which has been used with the blue water in all the experiments to be subsequently detailed, is prepared by dissolving one part of the salts in eight or nine parts of warm water, and allowing the mixture to cool before use. Its native name is "Kari nimuk," and it is obtainable to any extent at the trifling expense of two rupees per maund.

It is unnecessary to notice the numerous other kinds of solutions which have been proposed, as the preceding are at once effective, abundant, and simple, and will amply suffice for every practical purpose.

SECTION III.—*Of the Arrangements for bringing the Battery into action, and the precautions to be observed thereupon.*

The first step towards bringing the Battery into action after all the preceding details have been completed, is to charge the cells with the exciting solutions. The membranous bag of the cylindrical Battery is to be filled with the dilute solution of vitriol, so that this may be in contact with the zinc rod, and the space between the membrane and the copper is to be charged with the saturated solution of blue stone.

In using the rectangular Battery, it is necessary to soak the pasteboard cases in the dilute solution of sulphate of soda, till they are thoroughly saturated. Each copper cell is then to be made about two-thirds full of the blue stone water, and subsequently the damped pasteboards are to be respectively inserted. The solution of soda is then to be poured inside the cases till the blue water rises to within an inch of the mouths of the cells, care being taken that no extensive intermixture of the two liquids takes place. In this case sulphate of soda is in contact with the zinc, and sulphate of copper with the copper elements of the battery.

The cells having thus been charged, the small connecting cups are then to be partially filled with mercury, and to complete the circuit throughout the entire battery, the wire attached to zinc No. 1, is made to dip into the cup of copper No. 2; the wire of zinc No. 2 into the cup of copper No. 3; and thus the zincs of the series are to be each connected with the adjoining coppers. By this arrangement, a copper cup is left vacant at one extremity of the battery, and a zinc wire unemployed at the other. These are usually called the poles, and through them the power of the battery is directed as occasion may demand.

When the zinc plates are new, the solutions well made, and the connections perfect, indications of activity may usually be obtained a few minutes after the battery has been charged. The junction of the two poles by means of a short piece of copper wire having one of its extremities terminated by a small portion of very fine platinum or iron wire, will afford immediate proof of the circulation of the galvanic current, by the heating of the small wire to a degree dependent on the intensity of the action. Should it appear that the ignition is not so decided as might be expected from the size of the battery, it is probable some accidental interruption has occurred within the circuit, and the action of part of the cells been thereby neutralized. To ascertain the locality of this interruption, the test-wire is to be retained in contact with one pole, and the platinum at its extremity made to communicate with each cell in succession, beginning with the most distant. Passing thus along the battery, the total cessation or marked diminution of the heating power at any one point will indicate the accident to have taken place there, and on examination it will usually be found that either the connecting wires have slipped out of the mercury cups, or that their extremities have become corroded, and unfit for insuring perfect metallic contact, or that the connections have been imperfectly made. The removal of the impediments will be indicated by the full development of the power of the battery, in the intense ignition or fusion of the fine test-wire.

When batteries of a considerable number of cells are employed, it increases materially their igniting power to make the cells act in pairs by connecting two zinc plates directly with two copper cells, so that they may act as one, but with double their former surface.

Reference was formerly made to the propriety of occasionally amalgamating the zinc plates and the extremities of the connecting wires. With the former this is effected by washing the surface of the zinc with a weak solution of sulphuric acid, and then applying a little mercury, which immediately combines with the zinc, and renders its surface bright and smooth. Care must however be taken in handling plates after amalgamation, as they become exceedingly brittle. To amalgamate copper wire, the simplest plan is to brighten the surface, and then to rub the brightened portion with a piece of soft leather to which a little mercury has been made to adhere by means of a thin coat of tallow. After continuing the friction for a short time, adhesion of the mercury to the copper is effected.

The mercury employed in these manipulations generally becomes impure, it may however be purified again sufficiently for use, by straining it through a piece of fine cloth of any kind, by which the dust &c. is removed.

When the object for which the battery was put in action has been accomplished, the zinc plates should be immediately withdrawn from the pasteboard cases, and well washed with pure water till all the black deposit which will be found upon them is removed.

Having recently had an opportunity of perusing Sir Michael Faraday's admirable "Researches in Electricity," I am indebted to that work for the following remarks relative to some farther precautions to be observed in the use of the Galvanic Battery :—" *Weak and exhausted charges*, should never be used at the same time with *strong and fresh ones* in the different cells of a trough, or the different troughs of a battery; the fluid in all the cells should be of the same strength, else the plates in the weaker cells, in place of assisting, retard the passage of the electricity generated in, and transmitted across the stronger cells."

" In the same manner, the association of *strong and weak* pairs of plates should be carefully avoided." " The *reversal*, by accident or otherwise, of the plates in a Battery has an exceedingly injurious effect. It is not merely the counteraction of the current which the reversed plates can produce, but their effect also in retarding, even as indifferent plates, and requiring decomposition on their surface in *accordance* with the course of the current, before the latter can pass, is very deleterious. I find in a series of four pairs of plates of zinc and platina in dilute sulphuric acid, if one pair be reversed, it very nearly neutralizes the power of the whole." Another very serious impediment to the full action of the battery, is the deposition of copper on the surface of the zinc. This generally arises from the extensive intermixture of the solutions in consequence of imperfections in the partitions. Great attention ought therefore to be paid to keeping these water-tight at their edges, so that intermixture may only take place through the pores of the substance composing them. In my own experience, I have occasionally found the entire igniting power of a large twelve cell battery lost, from the preceding cause, and I find Faraday repeatedly cautions us against it.

SECTION IV.—*Of Conductors—their nature, uses, and modes of construction.*

When the Galvanic Battery is required to produce its igniting effects at a distance, as is the case in all mining operations, a path must be provided along which the generated current can find a ready and uninterrupted passage. Such a path is best furnished by metallic wires, the conducting power of the metals being very much superior to that of any other class of substances. Of the metals, copper is invariably preferred, in consequence of its high conducting power, its ductility, flexibility, and cheapness. The dimensions and other details connected with the conductors are determined by the nature of the circumstances under which they are to be employed, which may be classed under three heads:—

I. When the conductors are simply led along the surface of the ground, as in blasting rocks in quarries.

II. When the conductors are led under the surface of the ground, as in military mining.

III. When the conductors are immersed in water, as in sub-aqueous mining operations, for the removal of sunken vessels, or rocks in the beds of navigable rivers, &c.

In the first case, the conductors require no protection whatever, and may be formed of naked wires, care being however taken that while the operations are in progress, no metallic contact takes place between them. This might be effectually guarded against by inserting corks or pieces of wood between the two wires, at convenient intervals, throughout their length.

Our information relative to the best arrangements for conductors employed in military mining operations is still very limited, a few experiments due to Colonel Pasley being all that has yet been published on this branch of the subject. It is only at establishments where military works are continually being executed, that facilities for experiments of this kind can be obtained, and it might be worth while on the part of Government to sanction a series of them, at the head-quarters of the Sappers and Miners at Delhi, where, during the practice season, all the requisite facilities would be readily available. Colonel Pasley employed the same conductors in his military mining experiments as in his sub-aqueous explosions; they were elaborately insulated by repeated applications of water-proof composition, tape, and spun yarn, as will be more fully described hereafter. Although I feel considerable hesitation in venturing to express an opinion on a strictly experimental point, I am yet inclined to believe that, especially in dry earth, the minimum of insulation will suffice; a single covering of tarred tape to each wire, would, I believe, prove effectual under such circumstances.

In the third and last case, when conductors are immersed in water, the arrangements for insuring their efficiency are necessarily more intricate. Water, especially when holding saline matters in solution, being a good conductor, its contact with the wires during the passage of a galvanic current would tend much to diminish the igniting power of this; to prevent such an effect is therefore of primary importance in the formation of conductors for sub-aqueous operations. Colonel Pasley, to whose zeal practical science is so much indebted, has described a very effectual method for insuring the insulation of conducting [Fig. III. a.] wires. In his plan "A 1½ inch new tarred rope of the intended length of the conducting wires is passed slowly through boiling Stockholm tar, which renders it impervious to water,—a necessary process, or the rope on becoming wet after the wires are attached to it, as described below, would shrink one foot in 100 feet, and draw the wires into kinks." Two copper wires *b.* each 20 feet longer than the rope, after being annealed, are separately coated with water-proof composition (made by melting 1 ℔. of pitch, 2 oz. of bees' wax, and 2 oz. of tallow together, taking care that it never boils) and are covered with cotton tape, which is bound round the wire while the composition is hot. The wires are then bound to the rope by strong packthread, *c.* a turn being taken round each wire every time to prevent the *d.* possibility of their shifting. This being done, they are to be bound round again with coarse tape 1¼ inch wide, after another *e.* coating of composition has been laid on. Lastly, the whole must be served with new tarred yarn, and again paid over with the composition, when the process is complete. These arrangements, there can be no doubt, would be most effective in preventing any water from reaching the wires, but the resulting conductor is objectionable on account of its very great weight, and the difficulty of managing it when its length is considerable, especially in situations where strong tides and currents [Fig. V.] are to be contended against. In a modification of this plan, adopted in some experiments in Fort William, to be subsequently detailed, the preceding objections were, to a considerable extent, *a.* removed. The rope and coatings with tape were entirely dispensed with, the wires were each served with tarred rope yarn, over *b.* which a coat of dammer and grease was laid, the two wires were then lashed together by rope yarn, another coat of composition applied, and the conductor was complete. Five hundred feet of conductor, or one thousand feet of wire were thus prepared, immersed in salt water, subjected to great strains, and were found most effective. The only objection to the plan arose from the tendency of the thick wire to break, and difficulty of reaching the fracture in consequence of the strong adhesion of the insulating material to the wire. This of course admits of being readily obviated by annealing the wire, or employing a rope of small wires, instead of one thick one.

Another method for making conductors for sub-aqueous explosions [Fig. IV.] characterised by great simplicity, and possessing several important advantages, has been suggested by Dr. O'Shaughnessy. In this *a.* only one wire is insulated, by passing it through a series of corks, which are subsequently coated with water-proof composition, and wrapped round with wax cloth, or some other impervious substance. *b.* The second wire remains unprotected, and is simply tied with twine to the corks. The chief objection to which, in practice, this plan has been found subject, has arisen from the breaking of the corks across, and the consequent exposure of the insulated wire to metallic contact *c.* with the other, or with adjoining substances. This objection might be removed by serving the corks round with yarn, which, without destroying the buoyancy they possess, would effectually remove the danger of accidental contact, or by covering the wire with tape and water-proof composition, prior to its being passed through the corks. In all [illegible], however, in which charges are employed at great depths, more perfect insulation than this plan affords would, it is conceived, be essential. Under pressure, the corks become saturated with water, and the consequence is that there is then no actual insulation of the wire. To form a perfect conductor, the plan for entire insulation ought therefore to be adapted for that portion of the wires passing vertically downwards, and the corks should be used for the horizontal portion; lightness and buoyancy will thus be combined with complete insulation of that part where insulation is essential, and all risk of failure from accidental metallic contact, or diminution of the heating power of the battery, avoided.

The length of conductors is regulated by the limits of danger from the effects of the explosions, beyond which it is essential to the security of those engaged in the operations, that they should extend. This limit will necessarily vary under varying circumstances, and cannot always be determined with perfect accuracy. In blasting rocks and military mining, where the charges are carefully calculated to produce certain definite effects, the limit of danger may generally be known, or at least easily determined, but where large sur-charges are employed, experience is still required to shew accurately the extent to which their effects will reach. On this point Capt. Fitzgerald, in his report on the operations for destroying the "Equitable," remarks, "the limit of actual danger with a charge of 2050 lbs. of powder, in a depth of thirty feet of water, may from such experience as this single instance affords, be calculated as something beyond 120 feet. At 200 feet it is conceived that a person in a substantial boat would be perfectly safe, alike from the effects of the waves and the fragments of the wreck;" but should the charge be fired directly from a boat, he recommends "that for charges of the above description, the main conductors should not be less than 250 feet in length." These remarks must of course be received with the caution required by the limited experience on which they are founded, but they will furnish some standard to which, under similar circumstances, reference can be made. The depth of water most materially influences the limit of danger, which rapidly diminishes as that increases. In Colonel Pasley's operations at Spithead, when the depth was about ninety feet, the limit of danger appears to have been scarcely beyond fifty or sixty feet, although the charges ranged between 2000 and 2500 lbs., and instead of a lofty column of water being thrown up, the elevation of the surface over the charge appears to have been but slight, and the visible disturbance comparatively trifling.

In long conductors, it is impossible to have the wires continuous throughout, and the proper formation of the junctions is of essential consequence to their efficiency. The ends of the wires to be connected should either be strongly brazed together, or if this may be impracticable, they should be twisted together in the smallest possible twists for a length of at least six inches. A few turns, or imperfect contact, should never be considered sufficient, as such connections diminish the igniting power of a battery most seriously, while, on the other hand, well made junctions do not perceptibly affect it. To prove this, a thin wire, 1-20th of an inch in diameter, and 100 feet in length, was taken, and the minimum number of cells required to ignite dry saltpetre cloth ascertained. When the experiments commenced, five junctions existed in the conductor itself, while there were two more at the poles of the battery, and other two at the extremities to which the platinum igniting wire was attached. With these nine junctions, five cells of a battery 14 by ½ caused saltpetre cloth to ignite, but four cells were not able to effect this. New junctions were made at the termination of each experiment, till from nine they extended to *twenty-four*, and still the same strength of battery sufficed to insure the ignition. The junctions were carefully made, and the contact rendered as perfect as possible.

When the distance from which a charge is to be fired is increased, either the strength of the battery, or the diameter of the wires employed, must be increased also. The exact proportion existing between these increments has not yet been decided, and the results of experience, as far as it has extended, must on this point guide our proceedings. Colonel Pasley states that with a battery of 10 cylinders, 21 inches high and 3½ inches in diameter, having zinc rods 21 inches long and one inch in diameter, he invariably succeeded in igniting charges at 500 feet distance with copper wires 1-5th of an inch in diameter. The following experiments were made in Fort William with a battery of the rectangular form, consisting of 12 cells, each 14 inches square on the sides, having edge and bottom pieces 14″ by ½.″ The zinc plates were new and unamalgamated, the pasteboard cases in good order. The solution of sulphate of copper in the proportion of 1 of salt to 3 of water, the sulphate of soda 1 salt to 8 water. The quantity of the former in each cell was 2½ lbs. by measure, of the latter ¾ lb., and the battery was found to be in excellent action a few minutes after the solutions were poured in. The igniting effect was ascertained by bringing a small piece of platinum wire, forming part of the circuit, in contact first with dry cloth saturated with saltpetre, and afterwards with fine dry Dartford powder.

Experiment 1. The length of the circuit in this experiment was 300 feet, each conductor being 105 feet long, and composed of three strands of copper wire, each 1-20th of an inch in thickness, twisted like a rope. With four cells immediate ignition of saltpetre cloth was effected, but with three cells it was not till after some time, that the same effect was produced. With four cells the powder ignited readily, but I found it impossible to effect ignition with only three cells.

Experiment 2. The same conductors reduced to 50 feet.

2 cells produced immediately ignition of the cloth.

1 cell singed the cloth, and made it black, but could not ignite it.

2 cells caused the powder to explode directly.

1 cell caused the powder to smoke, but could not ignite it.

Experiment 3. Conductors of single wires, 1-20th of an inch in diameter and 50 feet in length each, were now employed, and the following results obtained:—

4 cells ignited saltpetre cloth immediately.

3 cells merely singed it.

4 cells ignited powder immediately.

3 cells had no effect whatever.

Experiment 4. The same conductors were employed, but thin brass wire was substituted for platinum.

5 cells caused the ignition of saltpetre cloth.

6 cells ditto of powder.

This experiment involves a question of some importance; viz. the substitution of some other material for platinum, which in this country is most exorbitantly expensive. An interesting series of experiments might be made on this point, by which our resources could not fail to be increased.

With the full power of a 12 cell Battery, I have frequently ignited charges of powder in water, at distances varying from 450 to 500 feet, employing insulated conductors; and by such a Battery was the final destruction of the "Equitable" effected, where the conductors were 150 feet in length, 120 of which were placed horizontally, the remaining 30 vertically in the water.

Before concluding this Section, it may be well to describe some expedients which, under certain circumstances, have been employed for the purpose of diminishing the lengths of conductors. The idea of effecting the completion of the galvanic circuit by means of a self-acting mechanical arrangement, appears to have originated with Mr. Martyn Roberts, who claims to have been one of the first who applied the Battery to useful purposes. With the details of Mr. Roberts' apparatus employed in his blasting experiments in Craig Leith Quarry, I am not sufficiently conversant to be able to describe it, but in blasting, such an apparatus would seldom, if ever, be necessary. It is in removing obstructions to river navigation, where strong tides and currents are to be contended with, making it essential that the conductors employed should be reduced to their minimum length, that self-acting dischargers may be employed to the greatest advantage. We are indebted to Dr. W. B. O'Shaughnessy for an ingenious plan for such a [Fig. VI.] discharger, of which the following are the details. The discharger consists of two distinct parts, having distinct offices, one being intended for completing the circuit, and effecting the ignition of the powder, the other for breaking the circuit, should any accident delay the explosion, and so rendering it perfectly safe to approach the Battery, and if possible ascertain and remove the cause of failure. These two objects [Fig. VI.] are effected by causing wires to pass, as shown in diagram No. 6, into four glass tubes partially filled with mercury. Over these, fixed in a small wooden framework, is placed a watch, for the hands of which a thin piece of sheet copper is substituted. This is fixed on the arbor of the hands, and each extremity carries, suspended from a short arm, a copper wire, bent like the letter U. The length of the legs designed for completing the circuit is so regulated, that on the copper hand being set to any specified number of minutes, they will not come in contact with the mercury in the tubes till that time has elapsed. Meanwhile the legs of the other wire have been immersed in the mercury of their tubes, but if the circuit is completed without ignition, then the copper hand continuing to traverse the dial of the watch in four or five minutes more lifts them out, breaks the metallic continuity of the circuit, and thus effectully prevents all risk in approaching the Battery. This form of discharger was successfully employed on the occasion of the first explosion of the "Equitable" in the river Hooghly, but it was then apparent that the utmost delicacy was requisite in making its adjustment. This delicacy and minuteness of detail must always prove serious defects in any form of apparatus employed in practical operations, in which so many risks of derangement are incurred, and in the case of the watch-discharger, the expense is an additional objection. The idea of employing such an apparatus, having however been suggested, there was comparatively little difficulty in designing a form of it which should not be liable to the preceding objections, and one was accordingly contrived, which was successfully employed throughout the remaining operations for destroying the "Equitable." The principle of this will readily be understood by a reference to Diagram No. 7, by [Fig. VII.] which it will be seen that only two mercurial tubes, with one bent wire, are employed. The wire *c. c.* suspended with its legs dipping a little way into the tubes, is attached by means of a thin metallic chain and hook to a loop of string (saturated either in saltpetre or powder, so as to make it readily combustible) which passes through the composition of a portfire *a.* from which, prior to its being fixed in the wooden stand, part of the paper casing has been removed, as shewn at *h. h.* This portfire burning down, ignites the combustible string, and the bent wire falls by its own weight into the mercury, thus completing the circuit. Should any accident delay the explosion, then another portfire *b.* calculated to burn four or five minutes longer than *a:* discharges a weight *d. d.* attached to it by means of a loop of string, rendered combustible as before. This weight on falling, raises the bent wire to which it is fixed by means of a thin chain, completely out of the tubes, and thus effectually breaks the circuit. On the first occasion on which this portfire stand was employed, it was discovered that the composition of the portfire *a.* just as it burnt out, fell into the tubes and checked the free action of the apparatus, but this was immediately afterwards rectified by the addition of a small copper plate *e.* for the portfire to rest upon, in the centre of which an aperture was pierced, just large enough to admit of the combustible string passing through. Throughout the very extensive series of experiments, which was made to test the action of the apparatus prior to its employment, on the occasion of the final demolition of the "Equitable," no instance occurred in which the composition, even in the smallest quantity, fell into the mercurial tubes, and this result was the more satisfactory, as some considered the above defect fatal to the practical utility of the plan. Its susceptibility of derangement was severely tested on the day of the explosion, as the water was very rough, and the wind high, so that the boat in which the apparatus was fixed, was continually coming in collision with the neighbouring row-boats, and although large quantities of the solutions of the batteries were thrown out in consequence, no part of the portfire stand was in the least degree disturbed, its subsequent action being as complete as could have been wished. The expence of the portfire stand is extremely trifling, as it may be made of any old materials which may be available.

SECTION V.—*Of the Application of the Galvanic Battery in Blasting Rocks.*

The arrangements necessary for the employment of the Battery in blasting operations, are exceedingly simple. The blast hole having been prepared, and the charge introduced, the igniting wires must be inlaid in a conical piece of wood, and fixed in the grooves prepared for them by a thin wedge of wood, as shewn in Diagram No. 8. The [Fig VIII. a.] igniting wires projecting about an inch beyond the base, or larger end of the cone, must be connected by a fine platinum or iron wire, and round this a cartridge of finer priming powder must be placed. The cone is then to be inserted in the blast hole, and by gently pressing it down and turning it round, the larger end should be made to rest on the charge. A tamping of small fragments of rock must then be poured in over the cone, and the whole arrangements are complete. The main conductors should then be attached to the priming wires, and on the circuit being completed at the Battery explosion will ensue. In the event of the common methods of tamping being employed, it would perhaps be the best plan to continue the use of the priming needle, and have an open communication from the surface through the tamping to the charge. The priming wires, inlaid in opposite sides of a bamboo, could then be introduced, and the igniting wire placed in direct contact with the powder of the charge. Had there been satisfactory grounds for believing sand a good tamping material, the use of the battery would have been much facilitated, as it would only have been necessary to pour the sand into the blast hole after the wires had been properly arranged; but I have in another place detailed some experiments, which, as far as they extend, militate against the employment of this material in blasting, and confirm Colonel Pasley's previously expressed unfavourable opinion of it.*

For blasting rocks under water, a very slight modification of the existing plan will admit of the use of the Battery. The tin case in [Fig. IX. a.] which the charge is to be lodged, must be made with a collar about three inches high, and 1¼ inch in diameter. A wooden plug *b*, must be turned to fit closely into this collar, and grooves ¼ of an inch deep, cut on its opposite sides. These grooves *c.* are then partially filled, either with common sealing wax or dammer, and the priming wires, previously heated, are made to bury themselves in this. The wax being again softened, a strip of wood is to be forced into each groove over the wire, and every aperture through which the water could force its way, is thus closed. The plug having its inlaid wires connected by the igniting wire, and having a small cartridge attached, must then be driven into the collar of the case, and it only remains to connect the priming wires with the main conductors, lower the charge into the blast hole, and complete the circuit. An arrangement like the preceding was employed in an attempt to fire a charge of powder at the bottom of an artesian well in Fort William, and although the pressure of the water was so great that case after case was burst, yet on no occasion could it be discovered that the water had reached the charge through the plug. A coating of sealing wax, and a tin cap, protected the exterior end of the plug, and prevented the water from passing through the pores of the wood, but this was rendered necessary only by the great depth of water, which was nearly 480 feet.

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* Professional Papers of the Madras Engineers, Vol. I.

In some operations, as those for deepening the Pambaum Passage, [Fig. X.] common quart bottles have been used to contain the charges, and when the depth is moderate, I have found, by a great many experiments, that if the priming wires in these are carefully passed through good corks, driven home and coated exteriorly with water-proof composition, the Battery seldom fails to insure their explosion.

SECTION VI.—*Of the Application of the Galvanic Battery in Operations for removing Sunken Vessels from the Channels of Rivers, &c. &c.*

The great value of the Galvanic Battery as an addition to the resources of the engineer, has in no instance been so fully demonstrated as in operations for removing the wrecks of vessels from the channels of navigable rivers, &c. Every one who has obtained his experience from actual practice in such operations, will be ready to bear testimony to the uncertainty, the danger, and the expense of the arrangements previously necessary for effecting the ignition of the sub-aqueous charges. The employment of the Galvanic Battery as the igniting agent, removes, to a great extent, these objections, and although, in sub-aqueous operations it is at present next to impossible to foresee and provide against every source of failure, yet the probabilities are now strongly in favour of success, whereas formerly they inclined in the opposite direction. Every successive series of operations will furnish us with new information, and every failure of which the cause is detected, will point out to us new precautions, so that in time we may expect to see the arrangements for employing the battery so fully matured in all their details, as to illuminate entirely those sources of accident, which in the existing state of our practical acquaintance with the subject, are so apt to escape undetected.

An object of primary importance in all sub-aqueous explosions, is to render the cylinder in which the charge is to be placed, perfectly water-tight; for, as Colonel Pasley remarks, "if there be even so much as a *pin hole* to admit the water, it will inevitably reach the powder. The material of which the cylinder must be made, will be determined by the depth of water over it. For any depth less than 50 feet, experience warrants me in stating, that a cylinder of wood, prepared like a common cask, bound with iron hoops, having staves an inch thick, and carefully coated exteriorly with sheet lead, will be found effective. Such a cask or cylinder, five feet nine inches long, three feet eight inches bulge diameter, and three feet three and a half inches end diameter, was on one occasion of failure during the operations against the "Equitable," left at the bottom of the river Hooghly, under a pressure of fifty-one feet of water, for twenty-six hours, and on being raised and immediately opened, it was found that the entire charge of 2050 lbs. of powder it contained, was as dry and serviceable as when it was originally put in, and was in fact the identical powder with which, a fortnight afterwards, the final demolition of the vessel was effected. This may be considered sufficient to shew that within depths of fifty feet, wooden cylinders cased with sheet lead, can with safety be employed. With a depth of ninety feet Colonel Pasley appears to have found it necessary to have recourse to wrought iron cylinders, but the limit at which the employment of wood becomes impracticable, has not yet been ascertained. We must wait the results of other experiments ere any decided opinions can be expressed; but I am inclined to think that when the depth exceeds sixty-five feet, a wrought iron cylinder will be found necessary.

For the priming apparatus, the following will, I conceive, be found [Fig. XI.] the safest, and most simple plan. The priming wires *a.* must be inlaid in grooves on opposite sides of a circular rod of teak wood, *b.* about 1′ 3″ long, in the manner formerly described (when detailing the experiments in Fort William) with sealing wax and wedges, *c.* An iron tube, formed of a part of an old gun-barrel, about 1′ long, and having an iron flange 4″ square, carefully soldered upon it *d.* at about three inches from one extremity, must be prepared, and into this the teak rod with its inlaid wires must be carefully driven, till one end is flush with the exterior end of the tube, or that nearest to the flange. Over this must then be laid a thick coating *e.* of melted sealing wax, which both prevents the water forcing its way through the pores of the wood, and also keeps the priming wires at their points of issue from metallic contact with each other. The interior extremities of the priming wires, *f.* must then be connected by the igniting platinum wire, which it has always, as far as my experience goes, been found necessary to solder to the copper with gold solder. A small cartridge of fine dry Dartford or mealed powder, must then be placed in immediate contact with the platinum. The apparatus might now be introduced into the cylinder, and by means of the flange and screws, fixed there; but it is of much importance to have the means of insulating the priming from the main charge, so that in the event of water penetrating to the one, it may not communicate with the other, and it is also very desirable to have the means of inserting and withdrawing the priming apparatus with facility, so as to rectify any accidental derangement which may take place, and these two objects are fully effected by the following plan, *g.* due to Capt. Fitzgerald. A metallic protecting case is provided for the priming apparatus, and made a fixture within the cylinder *h.* At its mouth a fine screw, at least an inch in length, is made, and on the iron tube, immediately beneath the flange, there must be cut a corresponding screw. By these means the priming apparatus can be screwed in, or removed at pleasure. In finally fixing it in the cylinder, washers of leather covered with white lead must be placed beneath its flange, and the small fixing screws must be carefully brought home. Over all a disc of sheet lead, must be soldered, *k.* and the arrangements of the cylinder, with the exception of the loading, are then complete. The latter is to be effected by setting the cylinder on one end, and pouring in the powder through an aperture, about an inch in diameter, in the other. This aperture must afterwards, be filled by a wooden plug, and all the stray grains of powder being carefully removed, a piece of sheet lead must be soldered over it.

It is an object of some importance to those conducting sub-aqueous operations, to be enabled at any time to assure themselves that the interior circuit of the wires is complete, without being obliged to withdraw the priming apparatus itself. Col. Pasley recommends that this should be done by introducing a portion of slightly acidulated water into the circuit, and noting whether decomposition occurs; but this is a most dangerous plan, and ought never to be adopted. The decomposition of a single grain of water, according to Faraday's recent researches, requires a current of electricity sufficiently strong to keep a platinum wire 1-104th of an inch in diameter and eight inches* long, at a dull red heat as long as the decomposition is in progress, the *quantity* of electricity maintained undiminished. The platinum wire we employ is considerably thicker than the preceding, but still the risk of premature explosion by Colonel Pasley's plan is very great. The danger is removed by employing a very weak galvanic circle and a galvanometer, but as the latter can seldom be met with in this country in its perfect form, I may be permitted, before concluding this section, to describe a simple substitute for it, employed during the operations against the "Equitable" [Fig. XII.] safely and successfully. A piece of copper wire about 1-12th of an inch in diameter, and fourteen feet long, was coiled on a rectangular wooden frame-work, *a.* 6″ long, 3″ broad, and 1″ deep, care being taken to preserve the metallic coils throughout from mutual contact, *b.* The magnetic needle of a small theodolite was then mounted on the point of a common needle, fixed in a thin wooden stand. On placing this within the frame-work, with the coils passing above and beneath it, and directing a galvanic current excited by the insertion of a circle, composed of a single piece of copper and zinc, each 2″ by 1′, into a glass of very slightly acidulated water, through the wire, the needle was immediately affected. Sometimes it merely trembled violently on its pivot; at other times its deflection was considerable, and it never failed to indicate the passing of a current when the circuit was complete. It is only therefore necessary to make the apparatus to be tested a part of the circuit, and if it does not interrupt the circulation of the current, the same appearances will be observed.

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* The above length is stated merely to give some definite idea of the danger incurred; but Faraday states that if the wire were a hundred or a thousand inches in length, and the cooling circumstances alike, the same effect would be produced as if it were no more than half an inch.

The cylinder is lowered to its position near the wreck to be destroyed by means of rope slings and guys. It is usually slung under the bows of a vessel, having davits or fixed pulleys, through which the suspension ropes are led. At the time appointed for lowering the cylinder, this vessel is moored directly over the wreck, the bows being just over the spot destined for the cylinder, and the lowering is effected by gradually allowing the suspenders to glide over the davits till it is felt that the bottom of the river has been reached. A very simple and ingenious plan for insuring the descent of the cylinder in a horizontal position has been suggested by Capt. Bowman, and consists in marking the two suspending ropes at intervals of a foot or eighteen inches apart. By noting these marks, which are alike at corresponding distances in each suspender, the position of the cylinder can immediately be seen, and if one end is lower than the other, the proper correction can be made.

On connecting the main conductors with the priming wires, the greatest possible care must be taken to ensure perfect contact throughout the junctions. Over each junction a piece of wax cloth or canvas should be wrapped, so as to prevent any contact of the conducting wires at those points, and it is sometimes advisable to lash a rough wooden case over the whole of this part of the apparatus.

SECTION VII.—*On the Theory of the Galvanic Battery.*

The first step towards the establishment of Galvanism as a branch of physical science, was made by Galvani, Professor of Anatomy at Bologna, in the year 1790. The accidental observation of certain muscular contractions in the limbs of a frog lying in the immediate vicinity of an active electrical machine, and the subsequent discovery that the same movements were produced by touching the limbs with two pieces of different metals, led him to announce that he had discovered a new kind of electricity resident in the muscles of animals. This announcement caused great excitement among men of science at the time, and Galvani's experiments were repeated, with various modifications, in all parts of Europe, being viewed with much curiosity, and giving rise to numerous speculations. The convulsions in the limbs of the frog only took place, it was observed, while sparks passed from the machine, and this fact therefore proved no more than that the muscles or nerves, or the two together, formed a very sensitive indicator of electrical action. It is on the subsequent remark, that by the contact of dissimilar metals, the same convulsions were produced, the science of Galvanism is founded.

The theory by which Galvani accounted for the phenomena he had discovered, was that the electricity originating in the brains of animals is distributed to every part of their systems, and resides especially in the muscles. The different parts of each muscular fibril he conceived to be in opposite states of electrical excitement, and the contractions to be produced whenever the electric equilibrium was restored. This during life was effected through the medium of the nerves, and after death by the intervention of metallic conductors. To the metals themselves he traced none of the peculiar effects produced, considering them quite passive, and only necessary as furnishing channels of conduction for the animal electricity.

These opinions of Galvani were very decidedly opposed, and foremost among his opponents stood Alex. Volta, Professor of Natural Philosophy at Pavia. By him it was maintained that the electricity was developed entirely by the contact of the two metals, and that the muscular convulsions were merely the effects of the passage of the electricity, thus developed, through the nerves and muscles of the animal. The views of Volta were far clearer and more distinct than those of Galvani, and to him belongs the true credit of having called into being the science, which in compliment to him, has been called Voltaic electricity as well as Galvanism. The latter is perhaps the more common of the two, and I have therefore retained it in this paper, but it must be remarked, that the term Galvanic Battery involves an anachronism, since this instrument was invented some time after the promulgation of Galvani's experiments, and no portion whatever of the credit due to its invention can be claimed for him, it being the result of original and independent investigations by his opponent Volta. In explaining the action of the Battery, Volta assumed that during the whole time the two dissimilar metals were in contact, a certain force was in constant operation, tending to effect the transfer of electricity from the one metal to the other. To this he gave the name of *electro-motive force.* Thus when zinc, and copper are in contact the alleged operation of this force is to impel the electricity from the copper to the zinc, so as to maintain the latter in a positive state relative to the former, which is itself in this case negative. If therefore the redundant electricity of the zinc be by any means carried off, and the deficiency of the electricity of the copper be supplied from other sources, the electro-motive force will immediately renew this difference of condition, and thus maintain a continual current of electric power, flowing always in the same direction. The office of the fluid in a Battery, according to Volta's theory, is simply to conduct the electricity from one metal to the other, and its conducting power determines the effective quantity of electricity which actually circulates in the Battery. The force ultimately generated was conceived to be the sum of all the forces acting in each cell separately, since the impulses given by the electro-motive force to the circulating electricity, were all in the same direction, and each added its effect to that of the preceding one. Hence then the interposition of any substance between the two poles of a Battery subjected it to the influence of this powerful electric current. The chemical action of the fluid on either of the metal plates was considered by Volta as in no way connected with the origin of the electricity developed, and his theory consequently took no cognizance whatever of its existence. It was soon however observed, that in thus neglecting chemical action, Volta had committed an important, indeed a fundamental error, since it was found that the quantity of Galvanic effect was always in proportion to the energy of the chemical action, and that the extent of surface of contact between the metals, had no relation to the quantity of electricity developed. It was farther found, that metals did not invariably stand in the same electrical relation to each other, but that this relation was determined by the chemical properties of the fluid, with which they were placed in contact. Facts like these were quite irreconcilable with Volta's hypothesis, and pointed clearly to the very important relation which obtained between the chemical action of the fluid on the immersed metals, and the development of the Galvanic energy. Dr. Wollaston, by whom chiefly Volta's theory was shewn to be untenable, conceived that the current of electricity was originally determined by the oxidation of the zinc, that the fluid of the circle served both to oxidise the zinc and to conduct the electricity which was excited, and that the contact between the plates served only to conduct electricity, and thereby complete the circuit. Succeeding philosophers, did not receive Dr. Wollaston's views as thus stated, and Sir Humphry Davy proposed another theory intermediate between that of Volta and the preceding. He adduced many experiments in support of Volta's statement, that the electric equilibrium, is disturbed by the contact of different substances, without any chemical action taking place between them. He acknowledged however with Wollaston, that the chemical changes contribute to the general result, and he maintained that though not the primary movers of the electric current, they are essential to the continued and energetic action of every Voltaic circle. The electric excitement was *begun*, he thought, by metallic contact, and *maintained* by chemical action.

Such was the state of the question, when, in 1834, Sir Michael Faraday undertook the investigation of the source of the electricity in the Voltaic or Galvanic Battery. The contradictory evidence, the equilibrium of opinion, and the variation and combination of theory, which he found to characterise the labours of all preceding writers on this subject, forced him to repeat and examine the facts stated, and use his own judgment upon them in preference to receiving that of others. His previous discoveries of the identity of electricity and chemical affinity, of the power derived from the action of the Battery, with the power to be overcome in any body subjected to its influence, gave him the means of examining the question with advantages not before possessed by any, and of which he has made such admirable use, that doubt can no longer be said to obscure the subject.

Faraday had always coincided in opinion with those who maintained, that *action* of the Battery was *continued* by chemical action, and that the *supply* constituting the current was almost entirely derived from that source, but whether metallic contact or chemical action *originated* and determined the current, was by no means clear to him. To set this point at rest, was therefore the first step in his investigations, and seeing no reason if metallic contact was not *essential*, why true decomposition by an electric current should not be produced without it, even in a simple circuit composed of two pieces of metal and an interposed fluid, he accordingly instituted some beautiful experiments under this impression, and persevering, ultimately succeeded in obtaining the most satisfactory evidence that *metallic contact was not necessary to the production of the Galvanic current.* This was farther aptly proved by referring to the spark which appears when the wires of a pair of plates in vigorous action are brought in contact with each other. This spark is occasioned by the electricity passing through a thin stratum of air, and its production proves that electro-motion really occurred while the wires were separated, and anterior to any actual contact between them being the result of the action of pure, unmixed chemical forces.

From his experiments, Faraday accordingly felt warranted in concluding that the electricity of the Voltaic pile is not dependant, either in its origin or its continuance, upon the contact of the dissimilar metals with each other; that it is entirely due to chemical action, is proportionate in its *intensity* to the intensity of the affinities concerned in its production, and in its *quantity* to the quantity of matter which has been chemically active during its evolution. Thus when zinc, copper, and dilute sulphuric acid are used, it is the union of the zinc with the oxygen of the water which determines the current, and though the acid is essential to the removal of the oxide so formed, in order that another portion of zinc may act on another portion of water, it does not, by combination with that oxide, produce any sensible portion of the current of electricity which circulates : for the quantity of electricity is dependent on the quantity of zinc oxidised, and in definite proportion to it: its intensity is in proportion to the intensity of the chemical affinity of the zinc for the oxygen under the circumstances, and is scarcely, if at all, affected by the use either of strong or weak acid. But in considering this oxidation or other direct action upon the *metal* itself, as the cause and source of the electric current, it is of the utmost importance to observe, that the oxygen or other body must be in a state of *combination*, and not only so, but combined in such proportions as will constitute a substance capable of decomposition, since without decomposition the transmission of a current cannot take place. The presence of such a substance is therefore essential to the action of a Voltaic circuit, and so intimate is the connection between its decomposition and power of transmitting a current, that if the one be checked, the other is checked also, and if the one be stopped entirely, the other stops with it. No Voltaic Battery has been constructed in which the chemical action is that only of combination ; *decomposition is always included*, and is, according to Faraday's belief, an essential chemical part.

But as the quantity of electricity set in motion by the decomposition of a certain quantity of anelectrolytes or decomposable substance, is definite in its action, and cannot by any means be increased beyond a fixed limit, it is evident that the action of each cell of a Battery is not to increase the *quantity*, but the *intensity* of the current circulating. A single pair of zinc and platinum plates throws as much electricity into the form of a current by the oxidation of 32·5 grains of zinc, as would be circulated by the same alteration of a thousand times that quantity, or nearly 5lbs. of metal oxidised at the surfaces of the zinc plates of a 1000 pairs, placed in regular Battery order, because at *each* cell, the quantity of electricity is expended in producing the decomposition of its equivalent of the exciting electrolyte, without which decomposition, as was before remarked, the current could not circulate at all. Hence then the action of each cell is to impel forward the quantity of electricity due to the oxidation of the zinc in any one cell, and thereby to exalt that peculiar property of the current, which we designate intensity, without increasing the quantity beyond that due to the zinc oxidised in that one cell. The waste of power in our common Batteries, in which the zinc of commerce is used, is so enormous as to be almost incredible. Faraday asserts that the chemical action of a grain of water upon four grains of zinc can evolve electricity equal in quantity to that of a powerful thunder-storm, and that with zinc and platinum wires one-eighteenth of an inch in diameter, and about half an inch long, dipped in dilute sulphuric acid, so weak as not to be sensibly sour to the tongue, more electricity will be evolved in one-twentieth of a minute, than any man would willingly allow to pass through his body at once. The loss with ordinary zinc appears to arise from portions of copper, lead, cadmium, and other metals being set free on its surface by the action of the dilute acid, and these being in contact with the zinc, form small, but very active Voltaic circles, which cause great destruction of the zinc, and in the same proportion as they serve to discharge or convey the electricity back to the zinc, do they diminish its power of producing an electric current, which shall extend to a greater distance across the acid, and be discharged only through the copper or platinum plate which is associated with it, for the purpose of forming a Voltaic apparatus.

These evils are remedied entirely by adopting that process of amalgamation of the zinc described in a former section of this paper, by which its surface is brought into one uniform condition, and those differences of character between one spot and another, which are essential to the formation of the minute Voltaic circles, above alluded to, effectually prevented. Hence the full equivalent of electricity is obtained for the zinc oxidised, and a Battery so constructed is only active while the poles, or, as Faraday calls them, the electrodes, are in connection, ceasing to act, or be acted on, the moment this connection is broken. The superiority of the amalgamated zinc is farther due to the state of the solution in contact with it, for as the unprepared zinc acts directly and alone upon the fluid, which the amalgamated does not, the former by the oxide it produces quickly neutralises the acid in contact with its surface, so that the progress of oxidation is retarded, whilst at the surface of the amalgamated zinc, any oxide formed is rapidly removed by the free acid present, and the clean metallic surface is always ready to act with full energy on the water.

When an amalgamated zinc plate is immersed in dilute sulphuric acid, the force of chemical affinity exerted between the metal and the fluid, is not sufficiently powerful to cause sensible action at the surfaces of contact, and occasion the decomposition of water by the oxidation of the metal, but it *is* sufficiently powerful to produce such a condition of the electricity (or the power upon which chemical affinity depends,) as would produce a current, if there were a path open for it. Now the presence of a piece of copper touching both the zinc and the fluid opens such a path, and its direct communication with the zinc is far more effectual than any connection formed between that metal and it by means of any decomposable bodies or electrolytes, because when they are used, the chemical affinities between them and the zinc produce a contrary and opposing effect to that which is influential in the dilute acid; or if that opposing action be but small, still the affinity of their component parts for each other has to be overcome, for they cannot conduct without suffering decomposition, and this decomposition is found *experimentally* to re-act upon the forces which in the acid tend to produce the current, and in some cases entirely to neutralise them. Where direct contact of the copper and zinc takes place, these obstructing forces are not brought into action, and therefore the production and circulation of the electric current are highly favoured. Hence the cause of the very great importance of *metallic contact* in the Voltaic Battery.

The liquid in the cells of the Battery has the power of retarding the circulation of the electricity generated, and it acts injuriously in greater or less proportion, according to the quantity of it between the zinc and copper plates, or, in other words, according to the distances between their surfaces. Hence then the reason of the great increase of power obtained by approximating the two metals, and Faraday states that not only is this power greater on the instant, but also that the sum of the transferable power in relation to the whole sum of the chemical action at the plates is much increased. *Double coppers* owe their advantages in part to the same cause, but derive their superiority chiefly from the circumstance that they virtually double the acting surface of the zinc, or nearly so, the action on both sides of the metal being converted into transferable force, and the power of the Battery, as to the *quantity* of electricity evolved, highly exalted in consequence.

The cause of the heat excited during the passage of a Voltaic current, remains still enveloped in considerable obscurity, and a more intimate acquaintance with the modes of action of electrical forces will be required, ere the difficulty can be fully removed. Uncertain as we still are of the precise nature of the electric current, the conclusion that the ultimate atoms of matter are in some way endowed or associated with electrical powers, is forced upon us by nearly all the great facts of the science. The researches of Faraday have led him to notice the truly enormous quantity of this electrical power, associated with these particles, and he has found, on evidence to which it is difficult to refuse our assent, that no less than 800,000 charges of a Leyden Battery consisting of fifteen large jars, charged by thirty turns of a powerful Plate Electrical Machine in excellent order, are required to produce electricity sufficient to decompose one single grain of water into its elementary constituents! That the heat developed by the action of a Battery, is due to the mutual electrical action of the particles of matter thus highly charged, was originally suggested by Berzelius, the celebrated Swedish chemist, and of this idea Faraday, in the seventh series of his researches, speaks with great commendation, but in the succeeding series, he finds reason to modify his praise, and states that the heat or light exhibit but a small portion of the electric power which acts, and "are merely incidental results, incomparably small in relation to the forces concerned, and supplying no information of the way in which the particles are active on each other, or in which their forces are finally arranged.

Such being therefore the state of doubt in which the immediate cause of the development of heat by the Voltaic current is involved, I do not dwell longer upon the point; but I cannot close this section without briefly adverting to the very beautiful and comprehensive theory proposed by Faraday to explain the varied phenomena of conduction and discharge, as well as many others to which, as being unconnected with the subject of this paper, I do not allude.

The division of bodies into conductors and non-conductors, or insulators, is nearly contemporaneous with the origin of the science of electricity itself, and the states of conduction and insulation have in all electrical theories been assumed as essentially different, although no one has ever shewn in what their difference consists. By a series of most beautiful experiments, Faraday has however shewn indisputably that they are only extreme degrees of *one common condition*, and that they consist in an action of the contiguous particles of matter dependent on the forces developed by electrical excitements. The first effect of an excited body on other matter in its vicinity is, according to Faraday's theory, the production among the particles of that matter of a peculiar state of polarization, which constitutes *induction*. If this inductive or polarised state continues undiminished, then perfect *insulation* is the consequence. If, on the contrary, contiguous particles of the matter, whatever it may, be metallic or non-metallic, have the power to communicate their forces, then *conduction* occurs, and is a distinct act of discharge between these contiguous particles. The lower the state of tension at which this discharge takes place, the higher is the conducting power of the matter. Hence then throughout a wire conveying a charge of electricity, there is a constant series of discharges taking place between the contiguous particles of which it is composed ; and Faraday intimates, in the form of a query, the possibility that these discharges may be similar in kind, though almost infinitely different in degree, to those which take place between two charged bodies through the medium of the air, or other insulating substance. A wire, it has been experimentally proved, has the power of sensibly retarding the passage of a current, and this power of retardation may be traced through a chain of substances till it reaches its maximum in air, but nothing can be detected during this process to shew that its nature has in any way been changed or modified otherwise than in degree, and therefore Faraday asks, " may not the retardation and ignition of a wire be effects exactly correspondent in their nature to the retention of charge and spark in air ?"

To enter farther upon the various theoretical questions naturally brought before our view in examining the principles of the Galvanic Battery, would extend this paper to a great, and indeed unnecessary, length, and I trust that what has already been said, will suffice to point out the great principles of its action. The chemical theory of the Battery, and indeed the entire identity of chemical and electrical forces, may now be considered as indisputably established by the researches of Sir Michael Faraday, and the question, as was previously remarked, thereby removed for ever from "the domain of *doubtful knowledge* to that of *inductive certainty.*"

APPENDIX.

Experimental Desiderata.

As many of the details connected with the practical application of the Galvanic Battery still require to be experimentally determined or confirmed, I have thought it might prove useful to append to this paper a few Tabular Forms, shewing to a certain extent the experiments required. Having no higher object than the establishment of rules for guidance in common practice, these forms have not been prepared with a view to great minuteness of quantitative measurement, but they are still, it is conceived, sufficiently extensive to admit of the deduction of valuable practical inferences, and should they not be considered so, they can readily be modified.

In recording experiments, all particulars connected with the Battery employed should be minutely and carefully specified, and it should never be forgotten, that if these are neglected or imperfectly stated, the value of the result obtained is most seriously diminished, and in some cases entirely destroyed. Each series of experiments should be prefaced by a detail of the dimensions of the copper and zinc elements of the Battery; of the state of the zinc rods or plates; of the number of times they may have previously been used; of the state of their surfaces; whether amalgamated or not; of the nature and quantities of the solutions employed; of the nature and state of the partitions of the connections throughout the Battery, and of such other points as the experimenter may consider it useful to note. The same careful detail should be entered into, relative to the conductors used. The results of the experiments should, whenever it is practicable, be entered in their proper columns in the forms immediately on being obtained, as it is impossible to trust to memory for a series of numerical statements, and a single error may cast doubt on a whole set of experiments.

TABLES OF EXPERIMENTS.

To determine the number of cells of a Galvanic Battery (Dimensions, &c., previously specified) required for effecting the Ignition of different substances, at different distances, and with different Igniting Wires.

FIRST SERIES.

Conductors dry and uninsulated

No. of Experiments.	Length of Conductor.	Diameter of Conductor.	No. of Junctions in Conductors.	Platinum Igniting Wire, 1½ in.			Iron Igniting Wire, 1½ in.			Brass Igniting Wire, 1½ in.			REMARKS
				No. of Cells to Ignite S. P. C.*	Ditto, F. P.	Ditto, C. P.	Ditto, S. P. C.	Ditto, F. P.	Ditto, C. P.	Ditto, S. P. C.	Ditto, F. P.	Ditto, C. P.	
	Ft.	In.											
1	40	1-6th	8	2	2	3	3	1	5	6	7	8	
2	60	0	0	0	0	0	0	0	0	0	0	0	
3	80	0	0	0	0	0	0	0	0	0	0	0	
4	100	0	0	0	0	0	0	0	0	0	0	0	
5	120	0	0	0	0	0	0	0	0	0	0	0	
6	140	0	0	0	0	0	0	0	0	0	0	0	
7	160	0	0	0	0	0	0	0	0	0	0	0	
,,	&c	0	0	0	0	0	0	0	0	0	0	0	
,,	&c	0	0	0	0	0	0	0	0	0	0	0	
,,	&c	0	0	0	0	0	0	0	0	0	0	0	
,,	&c.	0	0	0	0	0	0	0	0	0	0	0	
,,	&c.	0	0	0	0	0	0	0	0	0	0	0	
,,	&c	0	0	0	0	0	0	0	0	0	0	0	
21	500	0	0	0	0	0	0	0	0	0	0	0	

* S. P. C., Saltpetre Cloth, F. P., Fine Powder, C. P., Coarse Powder,	}	Conductors increase in length in arithmetical progression the common difference being 20

SECOND SERIES.

Conductors in water and uninsulated.

𝔄. *Water Fresh*

No. of Experiments	Length of Conductor.	Diam. of Conductor.	No. of Junctions in Conductor.	Depth of Water	Platinum Igniting Wire			Iron Igniting Wire.			Brass Igniting Wire.			REMARKS
					S. P. C.	F. P.	C. P.	S. P. C.	F. P.	C. P.	S. P. C.	F. P.	C. P.	
1	40	1-6th	8	5	3	3	4	4	5	6	6	7	8	
2	60	0	0	0	0	0	0	0	0	0	0	0	0	
3	80	0	0	0	0	0	0	0	0	0	0	0	0	
4	100	0	0	0	0	0	0	0	0	0	0	0	0	
,,	&c.	0	0	0	0	0	0	0	0	0	0	0	0	
,,	&c.	0	0	0	0	0	0	0	0	0	0	0	0	
,,	&c.	0	0	0	0	0	0	0	0	0	0	0	0	
,,	&c	0	0	0	0	0	0	0	0	0	0	0	0	
24	500	0	0	0	0	0	0	0	0	0	0	0	0	

𝔅. *Water Salt.*

Form similar to the preceding.

THIRD SERIES.

Conductors in water, but insulated.

A. *By Colonel Pasley's method.*

Form similar to the preceding.

B. *By Lieut. R. B. Smith's modification of ditto.*

Form similar to the preceding.

C. *By Dr. W. B. O'Shaughnessy's method.*

Form similar to the preceding.

FOURTH SERIES.

Conductors under ground and uninsulated,

A. *In Dry Soil.*

No. of Experiments.	Length of Conductor.	Diam. of Conductor.	No. of Junctions in Conductors.	Depth of Soil over Conductor.	Platinum Igniting Wire.			Iron Igniting Wire.			Brass Igniting Wire.			REMARKS
					S. P. C.	F. P.	C. P.	S. P. C.	F. P.	C. P.	S. P. C.	F. P.	C. P.	
1	40	1-6th	8	4	2	2	3	3	3	4	4	5	6	
2	60	0	0	0	0	0	0	0	0	0	0	0	0	
3	80	0	0	0	0	0	0	0	0	0	0	0	0	
4	100	0	0	0	0	0	0	0	0	0	0	0	0	
,,	&c.	0	0	0	0	0	0	0	0	0	0	0	0	
,,	&c.	0	0	0	0	0	0	0	0	0	0	0	0	
,,	&c.	0	0	0	0	0	0	0	0	0	0	0	0	
24	500	0	0	0	0	0	0	0	0	0	0	0	0	

B. *In Wet Soil.*

Form similar to the preceding.

C. *In Rocky Soil.*

Form similar to the preceding.—Nature, and if possible, the ingredients of the rock to be specified.

FIFTH SERIES.

Conductors underground, but insulated.

Form similar to the preceding.—Nature and extent of insulation to be detailed.

On the Common Hare of the Gangetic Provinces, and of the Sub-Hemalaya; with a slight notice of a strictly Hemalayan species. By B. H. HODGSON, ESQ., *Resident at the Court of Nepal.*

(LEPUS MACROTUS ET OIOSTOLUS, NOBIS.)

It has often been remarked that the ordinary type of the genus Lepus in the Gangetic provinces, differs materially from that of England, and it has been further alleged that the Hare of the Sub-Hemalayan ranges of hills is not similar to that of the plains below them. No one however has, I believe, heretofore been at the pains to verify or refute these allegations, which I therefore now purpose to test, and to show that the former is sound, the latter unsound. I have specimens of the ordinary Hare of the plains and of the hills now before me, and after the most careful comparison, can discern no difference between them in size, proportions, or even in intensity of hue in the colours, further than as such every where varies with age, health, and seasons. The type therefore of this genus in the mountains and in their subjacent plains (on this side the Ganges at least) is the same; and of this species, which we shall call *Macrotus* (from the large size of its ears) the females are, as usual, somewhat larger than the males, being from snout to rump nineteen to twenty inches, with an average weight of 6 lbs. and a maximum of 8½ to 9, whilst the males fall short by one inch or more of this size, and seldom surpass 5 lbs. in weight. The general structure and proportions are those of *Lepus timidus*, but the size is much less, the English hare being ordinarily 8 lbs. and frequently reaching 12 lbs.; and if I may trust my notes, as well as the fresh specimens now on the table before me, the females of *Macrotus* invariably have six teats, of which two are placed on the very top of the thorax, and four remotely from them in a parallelogram in the central part of the abdominal region. This is a noticeable circumstance if the six to ten mammæ of authors be ascribed to the genus with sufficient care, and if *Timidus*, or the European type, may be thence presumed to have ever more than six. If so, the invariably restricted number of mammæ in *Macrotus* will form one feature of specific independency; another will be deduced from its inferior size; and a third from the greater length of the ears as compared with *Timidus*, to which, in its general proportions and colours, it certainly bears a close resemblance; even in colours however, there is at least one material and constant difference, that whereas the dorsal aspect of the scut or tail in *Timidus* is black, in *Macrotus* it is of similar hue with the back, but paler. Nor do I notice in *Macrotus* any peculiarity of structure in the hair (towards tips enlarged, acuminate, and recurved) such as is ascribed to that of *Timidus.* The general colour of the Indian Hare is a deep cinnamon red, copiously mixed with black on the body superiorly, but unmixed upon the limbs and front of the neck and chest, and also on the nape and dorsal aspect of the neck near it; pure white upon the head and body below, as well upon the insides of the limbs near it, upon the genital region, posterior margin of the buttocks, and whole inferior and lateral surfaces of the tail. The front of the upper lip, the margin of the mouth, a circle round the eye, and a line thence to the nostril are always pale, rufescent, hoary, or purer white, and so also the bases of the ears dorsally, and a strip thence continued towards the shoulders, and bounding the purely ruddy hue of the soft nape. The superior margin of the ears on both sides is black, but the general hue of the fur on the ears anteally is similar to that of the head, whilst posteally and interiorly the ears are nearly nude. The mustachios (which are not undulated) are half black and half white, and though the arms or cubits are usually unmixed with black, yet this is not always the case, the animal in very high fur having the cubits, like the tibiæ (externally) powdered with black. The fur in general is very rich, full, and soft, both the woolly and hairy portions, the former of which seldom exceeds an inch in length, whilst the latter varies from 1 $\frac{1}{8}$ to 1½ inch. The hair has mostly four rings from the base, thus—bluish hoary, black, red, and black. The wool wants the terminal black ring every where, and is for the most part white, but ruddy apically: the hair wants it on the purely red parts of the animal, such as the abdominal aspect of the neck and the limbs; and both wool and hair are devoid of all rings, and wholly white upon the belly and parts adjacent, as well as upon the inferior surface of the head. Some hairs are wholly black or dusky on the back; but in general besides its bluish hoary base, every hair on that surface of the animal, has two black rings divided by a red one, which latter is of a deep cinnamon hue, almost exactly, or if the reader pleases, brownish-red. The buttocks posteally are less dashed with black than the middle of the back, which in fine furred animals is very dark: but the ordinary dorsal colouring of the hair and wool prevails on the buttocks, as well as on the dorsal aspect of the tail, both parts being like the back, though somewhat paler. Occasionally the wool and base of the hair are dusky, rather than hoary, and the intensity of the red hue, as well as the quantity of black tipt hairs, depend on health, age, and season, both in the hills and the plains. There are of course five digits on the fore extremities, and four on the hind ones, but the thumb consists of a nail only, and the other anterior digits are gradated, as in our hand; whilst in the posterior extremities the central digits are equal, and of the laterals the interior is the longer. The mustachios are ample, extending much beyond the base of the ears, not harsh, nor adpressed, nor undulated as in *Timidus*, and of many lengths. Above the eye are four to six lesser bristles, and two or three longer ones below it on each cheek. Eyes remote, and much nearer to the ears than to the snout; ears considerably (or $\frac{1}{5}$) longer than the head, so that when pulled forward they may be extended from 1½ to 2 inches beyond the tip of the nose. Head compressed, and arched entirely along the vertical line. Scut without the hair extending only half way from the knee towards the heel of the straightened leg, and with the hair falling considerably short of the os calcis.

The following dimensions will complete the illustration of this species as found in the mountains and plains.

	Plains.	Hills.	
	Mas.*	Mas.	Fœm.
Snout to base of scut, ...	1-6	1-6	1-7
Snout to occiput straight, ...	4	4	$4\frac{1}{8}$
Ditto ditto, by curve, ...	4 ¾	4 ¾ plus	4 ¾
Snout to fore angle of eye, ...	2 less	2 plus	2
Thence to anteal base of ear, ...	$1\frac{7}{16}$	$1\frac{7}{16}$	1 ½
Ears length from scull, ...	4 ¼	4 ¾	5
Ditto ditto from anterior inner base,	$3\frac{5}{8}$	$3\frac{5}{8}$	4 ¼
Width between eyes, ...	1 ¼	1 ¼	$1\frac{6}{16}$
Scut only, ...	3 ½	$3\frac{5}{8}$	$3\frac{5}{8}$
Scut and hair, ...	$1\frac{7}{8}$	5	5
Olecranon to carpus, ...	$3\frac{11}{16}$	$3\frac{10}{16}$	$3\frac{11}{16}$
Thence to tip, long finger (not nail,)	2	2	$2\frac{1}{16}$
Tibia or knee to os calcis, ...	$4\frac{14}{16}$	$4\frac{15}{16}$	$5\frac{1}{16}$
Thence to tip long toe (not nail,)	$4\frac{1}{16}$	4	4 ¼
Girth behind shoulder, ...	9 ½	9 ¼	10¼
Weight (very thin)	4 ½ lbs.	4 ½ lbs.	5 lbs.

The following specific character may perhaps serve to distinguish our animal · *Lepus macrotus*, with black tipt ears longer than the head. General colour, full cinnamoneous red, shaded above with a black : tail dorsally concolorous with the buttocks, head below and belly pure white : in size less than *Timidus*. Snout to rump 18 to 20 inches, and weight 5 to 7 lbs. Head (straight) 4. Ears five inches. *Habitatt.* Gangetic plains and sub-Hemalayas. Of the Tibetan species I possess only some wretched remains which enable me however to indicate the species thus :—

Lepus Oiostolus, with fur consisting almost wholly of wool, considerably curved and interspersed rarely with very soft hairs. Slaty grey blue for the most part and internally, but externally fawn-tinted above, and whitish below and on the limbs: some hairs on the back tipt with black beneath a subrufous ring. Tail white, with a grey blue strip towards the back. Apparent size of the last. *Habitatt*, the snowy region of the Hemalaya, and perhaps also Tibet.

Hares of the first species are exceedingly abundant in the Nipalese Tarai and British districts near it, but less so in the mountains, though there also they may be found in most districts wherein the declivities of the mountains are not very precipitous nor wholly covered with dense forest. Hares love the lower and more level tracts within the mountains, where grassy open spots are interspersed with copsewood under which they may safely rest and breed; for in the mountains the hare never resorts to holes or burrows; nor, I believe, voluntarily in the plains, though I have heard the assertion that it does so. In the plains patches of grass interspersed with cultivation are the favourite resorts of this species, or Jhow shrubberies fringing the banks of nullahs, where, occasionally the animals congregate in numbers wholly unknown to the mountains. The Indian Hare, or *Macrotus*, breeds frequently during the whole year, and produces usually two young ones at a birth. The young are born with the eyes open, and furnished with teeth. In June 1835 I took two from the left horn of the uterus (none in the right) of a female; and these young, though unborn, had the eyes open, and the fur quite perfect. In fact, the young follow their dam as soon as they are born.

CATHMANDOO,
February 1841.

Nepal, March 1st, 1841.

The account of the Hares which I sent you was written *currente calamo*, and without my being at the trouble to look (shame on me) at my own Catalogue of Mammals apud Linnæan Transactions, where the Hare of the plains is named *Indicus*, and that of the Himalaya *Œmodius*. These names might do, and changes are bad: but tropical appellations are objected to, and in the plains there is another Hare, *Nigricollis*, wherefore the names affixed to my paper with you should perhaps stand; but a note at the foot of the page should identify them with *Indicus et Œmodius* respectively of the Catalogue, thus: "These species are named respectively *Indicus* and *Œmodius* in my published Catalogue. Nor perhaps was it worth while to drop the local appellations, though *Nigricollis* constitute a second species in the plains of India."

B. HODGSON.

A short account of Khyrpoor and the Fortress of Bukur, in North Sind. By Captain G. E. WESTMACOTT, *37th Regt. Bengal N. I.*

[Concluded from page 1113.]

The Indus generally begins to rise in March and abate in the early part of October, but varies in different seasons. In 1839 it just rose in the end of March, but did not overflow until May. It commenced decreasing on the 21st of August, and had fallen twelve feet at Bukur in the end of September, and about four more the close of the month following. The suddenness with which it rises and falls are only equalled by the snow torrents of the Himalayas and Switzerland. I have known the river increase several feet in a few hours, and people are frequently carried away while bathing by a rush of water, which bears them along without the power to resist it. On these occasions boats are driven against the banks, and if old and crazy, break in pieces, and the passengers are drowned.

The shores of the river are fertilized by the annual inundations, and artificial channels are cut from it in the interior of the country to prepare the land for tillage. Some of these useful and munificent works belong to the time of the Mogul emperors of Delhi. A great navigable canal called the "Sind" leaves the river about thirty miles above Bukur, and after passing Shikarpoor pursues a southerly direction to Noushuhra, the boundary of the Purgunnah of Moghulee, and enters that of Chandkoh. Lower down it joins the Nara, which tumbles into lake Munchar after a circuitous course of about 120 miles. Another great canal was cut on the east bank by the late Meer Sohrab. It receives its water from the Indus, a few miles below Bukur, and terminates in the desert soon after passing the city of Khyrpoor. In the height of the floods, however, it flows southwards in a continuous stream, diffusing plenty over a wide extent of country, which would be, without it, an unprofitable waste, and a portion of its waters find their way back through different channels to the Indus. The supplies of this canal have failed within the last two years, and unless pains are taken to deepen it, will soon cease to flow. It would be a serious loss to the people of the capital, who depend on it for wholesome water several months of the year, that which they draw from wells being soft and brackish, and hardly drinkable by persons unused to it. The filling up the canal would occasion a diminution of the revenues, which will probably induce Meer Roostum to repair it. Both the Shikarpoor and Khyrpoor canals frequently overflow their banks during the freshes of the Indus, and dry up when the river subsides. The small cuts that irrigate the country are exclusively at the charge of the farmer, who contributes likewise to the expense of making and repairing the large canals within his property.

As soon as the waters of inundation evaporate, the soil is ready to receive all kinds of seed almost without preparation. It is sown in the month of October, and always yields an abundant harvest. The river does not occupy above a fourth of its channel in the dry months, and not more than a tenth of the soil on its banks, capable of cultivation, is turned to account. There are vast tracts in north Khyrpoor, which the inhabitants of Bengal would seize with avidity, overrun with tamarisk, and the long feathering grass known in India by the name of Moonj.

The tamarisk springs from the soil within a month after it is deserted by the water, and villagers at a distance from the stream drive their buffaloes to graze on the shoots and young grass which cover the banks. The herbage is extremely nutritious, and communicates great sweetness to the milk of cattle that feed on it. Cow's milk is inferior to buffaloe's milk in richness and flavour. The people convert the milk to ghee, and dispose of it to merchants and boatmen, who carry it for sale to the markets of Roree and Sukhur. The peasants remain at the river in tamarisk sheds until the floods oblige them to retire. Some of the sheds cover an area of several hundred yards, and contain 400 and 500 buffaloes, with the herdsmen, their wives and children. Half a dozen families often crowd into a narrow space divided from the herd by a railing, and cook, eat, and sleep on the ground among milk pots, platters, spinning wheels, and a few articles of common furniture.

There are no rocks in the river above Bukur, and the extent of cultivation on the Khyrpoor side much exceeds that on the shore opposite; the bank is cut to receive Persian wheels, and the peasant removes them when the floods cease to another locality.

The stream of the Indus is foul and turbid, and though little encumbered in the dry months with reeds and drift wood, is sufficiently rapid to hold in solution quantities of sand and other matter it washes along in its course. The number of shoals that perpetually shift their position obstruct the navigation, and render it necessary in the dry season to stop boats while one of the crew is sent forward to sound the channel. Vessels are constantly obliged to cross from one bank to the other, and the want of paths through the dense jungle makes it difficult to carry the track line, and serves materially to lengthen a voyage.

The east part of Khyrpoor is nearly desert, and the scanty supply of well-water loathsome to the taste. The few spots which yield good pasture depend on the rains, which often fail. The supply in 1839 was said to exceed what had fallen for years, but lasted only four days. In the two preceding years a drought destroyed thousands of cattle.

The *lye*, or tamarisk, is the most abundant production of the wilds, and almost as useful to the Sindee as the bamboo to the native of India. The flowers (*sakoor*) are dried, pulverized, and infused in water, and form a red fluid in which cottons are steeped to prepare them for dye. A considerable quantity of flowers are exported to Persia and the Punjab. The wood supplies the inhabitants almost exclusively with fuel, and they employ it in the construction of houses, boats, and agricultural implements. The boughs are used for fences and cattle sheds, to line wells, and to thatch houses, and are plaited into baskets, and mats for boats, for which their strength and toughness admirably fit them. The young shoots form a nutritious diet for goats and cattle.

Next to the tamarisk in point of usefulness is the *Moonj*, a species of grass which rises twenty or thirty feet high. The peel is twisted into rope for masts and track lines, the texture depending a good deal on the length of time the grass is beaten. The ropes last a twelve month if kept constantly wet, but hot and dry weather destroys them in a third of the time. The string made from the plant is used to lace the common country bedsteads, and the thick part of the stem for screens (*shutees*) for the ceiling and walls of houses. The upper stem bears a long feathering flower, and is made into screens and baskets to hold grain and chaff for cattle.

The *Kas* is another description of wild grass, sometimes used to thatch huts, and cattle browse on the shoots. The *Pees* reed grows on the hills, and is much used for rope, and more pliable than *Moonj*, but wet destroys it; and there is a long flag called *putar* found on the banks of streams and lakes, made into soft pliable ropes, which boatmen pass round their loins in tracking.

Nitre is found in great abundance effloresced on the surface of the soil, and the people manufacture salt more than enough to supply their wants. Coarse salt sells in Roree at four and five muns the rupee, and a fine kind at ten seers.

Coarse cotton cloth (*Khasa*) is manufactured in the principal towns and villages, chiefly for home consumption, and a little is exported to Afghanistan and Persia. Common *loongees* are fabricated at the villages of Raneepoor, Gumbut, Khoora, and Duraz, situated together to the south of the capital. They are chiefly cotton with silk borders, and a few of silk and cotton mixed, and very inferior to the fabrics of Thalfa and Buhawulpoor. Silk cloths are woven at Roree, Khyrpoor, and Shikarpoor, but the weavers are ignorant how to flower and variegate them. Sind caps are chiefly made at Shikarpoor and Roree, and a common one with a cotton top and silk sides costs a rupee. Common shoes of brown leather are made every where at from four to sixteen anas a pair. They are inferior to those of Buhawalpoor, and the people are unacquainted with the art of embroidering them. Manufactories of paper and gunpowder are established in all the large towns. The best paper factories are at Shikarpoor and Larkhanu, but produce paper of inferior quality to that of Kashmeer and Delhi.

Dromedaries and asses constitute the principal means of conveyance. The duty on grain is often levied on the load, and merchants to save money overload their cattle, and put 800 lbs. on a camel and 250 on an ass. A fine camel will carry this weight easily, but six hundred weight is an average burthen on a long journey, and a female carries one hundred pounds less. The latter is only employed in case of necessity. The best saddle camels come from Kuchee and Jussulmeer, and sell in Khyrpoor at from 100 to 150 rupees, and baggage camels at from 30 to 60 rupees. These were the prices before the British approach; they are now almost double. Camels are ridden on a journey by people of rank, and carry their clothes, provisions, and a servant armed with a sword and matchlock. Merchandise is brought overland from India and central Asia exclusively on the camel, as it is the only animal that can endure the heat and fatigue of the desert in the summer months. It finds nourishment in the most inhospitable spots, and performs a stage of twelve and fifteen miles with ease. Caravans travel at night in the hot months, and the camels are left to browse in the day-time, but in winter the day is devoted to the journey, and the night to repose. These animals are not used to carry swivels, as in Rajisthan, but they turn mills and water-wheels. The Sind camel is the species with one hump, or Arabian camel, usually called the dromedary, and the small breed of Khyrpoor is not capable of supporting much fatigue, nor of lifting the load a good camel of western India will carry. Disease, hard work, and poor diet occasion a great mortality among them every summer.* The lower classes have a large number, and cannot afford them grain, and they feed in the wilds on *juwasee*, and other nutritious shrubs. These depend on the rain, and in seasons of drought, such as 1837 and 1838, the animal is reduced to a state of great misery, and numbers perish. Large herds are pastured by a single peasant, whose maintenance is almost the only charge on the proprietor.

Part of the *Thur*, or Indian desert to the south-east of Khyrpoor, belongs to the Ameers of Hydurabad, and is celebrated for a very superior description of goats and cattle. The ghee is excellent, but the dealers adulterate it with flour before they carry it to the markets.* A Khyrpoor goat gives commonly three-quarters of a seer of milk, and a fine one that yields a seer is worth two rupees. Goats kept for the table sell at from twelve to twenty anas a piece. A male costs one rupee, and when trained to fight, which is a rather favourite pastime, twice and thrice the sum, and a kid from eight to twelve anas. A good breed comes from Gumo, in the district of Khyrpoor, but Boordgah is considered to produce the finest goats, sheep, and cattle, of any place in the prince's territory. Oobaro, in north Khyrpoor, produces ghee in great abundance, and immense herds of buffaloes are grazed on the banks of the Indus in the districts of Boong and Bara.† The females cost from twenty-five to forty rupees,‡ according to the quantity of milk they yield, a calf ten, and the highest price of a male is twenty-five rupees. A ram costs 1¼ rupee: a ewe that gives half or three quarters of a seer of milk, the same: ewes reserved for slaughter one rupee, and a lamb from ten to twenty anas.

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* During the hot months of 1839 the camels of the British Commissariat at Sukhur died at the rate of one per cent. ?

The best horses and asses come from Afghanistan and Persia. The horse of Sind is small, lean, and of miserable aspect, but hardy, and capable of enduring great fatigue. Mules for burthen and hire are kept chiefly at Khyrpoor by Talpoorees, who are too poor to entertain servants, and usually accompany the animals.

The ass, like his fellow of Arabia and Egypt, is a small active animal, with considerable power of endurance, and so useful that there is hardly a family of Moosulmans and Hindoos without one. He brings grass and fuel, carries the merchant and his grain, and the poor keep him for hire. He is never fed on grain, and subsists in the wilds the best way he can, but is always in sleek and comfortable condition.

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* In India ghee is adulterated with Muhooa oil, the *shukurkund*, or sweet potatoe, and the ghoiya vegetable, &c.

† The width of the Khyrpoor territory at Bara and Boong is only ten or twelve miles, and extends along the Indus about thirty miles north of Sulzulkot, and terminates between Boong and Rajinpoor. The possessions of the Ameer of Khyrpoor are represented in Arrowsmith's map to include Rojhan, the chief town of the Muzaree Belooch, but do not project north of Keen in Kuchee, which is nearly opposite Boong. The late Rajah Runjeet Sing seized and annexed Miyan Rojhan to his dominions in the middle of 1836, because of an attack by the Khyrpoorees on his frontier post. Arrowsmith's map of central Asia, dedicated to Lieutenant, now Lieut. Colonel Sir A. Burnes, is I believe the most correct chart of the Indus that has been printed, and at that time (1834) Rojhan belonged to Khyrpoor.

The travelling distance from Buhawulpoor, in Daoodpootra, to Feerozpoor is 160 kos, or 225 English miles. The kos in Daoodpootra is about one mile and three furlongs English, and the frontier extends within 56 miles of Feerozpoor. The Indus constantly changes its channel, and a survey of its course this year might give a very inaccurate representation of it the next. In the summer of 1839 upwards of 4000 bighas of land, partly cultivated, situated midway between Ooch and Mittun, were transferred by a caprice of the stream from the Sikh territory to Buhawulpoor on the east bank. The river is gradually deserting Ooch, which is now upwards of three miles from the bank in the dry season.

‡ These were the prices at Roree and Sukhur before the British entered Sind, and may be taken as the average throughout the country.

The pig is not found in Sind in a domestic state, but the villages, like those of India, swarm with a breed of half-wild disgusting dog, who subsist almost entirely on offal.

Tigers, wolves, jackals, boars, porcupines, deer, and hares, harbour in the forests; and among the amphibious animals are the alligator, otter, badger, and porpoise. Alligators inhabit the creeks and minor streams that diverge from the Indus, and are held sacred by Hindoos and Moosulmans. Tigers are rare, and kept by Moojawurs attached to the tombs of eminent saints to attract visitors. The hog is the scourge of the farmer, and he is obliged to employ watchmen at night to preserve his fields from their ravages. Wolves carry off poultry, but seldom attack grown-up persons. Badger and otter skins form an article of export to Afghanistan. Snakes, scorpions, and centipedes abound in rocky situations, and the last attain a large size. Flies, mosquitoes, and many varieties of beetle and grasshopper appear when the inundations subside, but are less numerous and troublesome than in the wet season in India. Leeches are plentiful, and extensively used for venesection. Among the birds are a peculiar kind of Myrops or bee-eater; the black partridge, similar to that of Kuch, but differing from the species found in the north provinces of India; the grey partridge. Two kinds of woodpecker found also in the Konkan; the razor-beak, similar to that of Gujerat; several kinds of gull; the pelican; a species of plover, peculiar, I believe, to Sind; and the Kunchee, or Bhooketta of India, a black bird with long feathers in the tail, remarkable for its antipathy to the crow. Though a third less in size than its foe, the Bhooketta attacks it with so much vigour and determination, that it trembles with fear, and endeavours to escape without offering resistance. Geese, ducks, divers, snipe, and other water-fowl are uncommonly plentiful. The first congregate in thousands on the banks of the Indus and the extensive lakes and morasses formed by its overflow, and form part of the food of the lower classes.

The multitude of fish in the Indus, and the lakes and streams that flow from it, also supply the inhabitants with food. The saleswomen dispose of the small fish by weight, and sell the large ones to purchasers in any quantity they require, by guess. The following catalogue of sixteen, includes, I believe, all the species found in the Indus in Upper Sind. I have added the price in the Roree market of the largest and finest of the kind, but it varies of course with the season and drought.

The Khuggur* ranks first in point of flavour and wholesomeness, and is called par excellence, "The fowl of the Indus." It attains the length of ten or twelve inches, and sells for about three pys.

The Dumra† (Rohoo of the Ganges) is considered next to the Khuggur in excellence. It comes into season in September, and is plentiful the following month. It grows to the length of 4½ feet, and sells for twenty pys.

The Pulla, a kind of carp (Roree of the Ganges, and Hilsa of Bengal.)

The Thelee† is a dark coloured fish, of good flavour, twenty-six inches long, and sells for nine pys.

The Shakir† is eighteen inches long, and sells for five pys, but is not a favourite. There are a few always in the market, but October is the best month for them.

The Singara† is well flavoured, and much eaten. The largest measure about twenty-four inches, and sell for six pys.

The Pundun* (Ruya of the Ganges and Jumna) spawns in the month of Sawun. The largest are six and seven feet long, and sell for eighteen pys, but are not prized from being full of small bones.

The Goj* (eel) grows three feet long, but is little eaten, from its resemblance to a snake. It sells for four pys.

The Lahoor,*† Mŏokŏr,* and Putonee* are each about eighteen inches long, and cost three and four pys. The first is much eaten, but the last is disliked from being full of small bones.

The Dumun† (Kutera of the Ganges?) is nine inches long, and costs two pys. It is full of bones.

The Sonee† measures eight inches long, and sells at three pys the seer. Like all bony fish it is eaten sparingly.

The Pullura is three inches long, and sells at the same price.

The Ghar† and Kooree† are each two inches long, and cost four and five pys the seer. They are great favourites.

When the river is in a state of flood the fishermen live in boats, and at other times on the banks in temporary huts built of reeds and tamarisk cut in the forest. They farm tracts of the river, one or two miles long, by the year, and sometimes pay in kind at the rate of a third or a fifth, and at others head money every second month. Two or three men residing under the same roof, pay less than a single individual.

A fisherman of Roree pays every two months, Rs.	3
Two fishermen together, ...	5
Three fishermen together, ...	7

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* Always in the market.

† In season in October and November.

The Pulla fish has been sometimes compared to the salmon, from the extreme richness of its flavour, and is excellent either fresh or salted. When full grown it measures about eighteen inches long, and comes into season in Upper Sind in the month of *Sawun*, when the river is full, and is in its prime about six weeks. The people prize it less than others of the finny tribe from its heating quality, which is said to generate itch and another disagreeable disorder in those who eat it constantly, and it is filled with small bones. The poor Sindees, among other dirty practices, broil and eat the entrails. The price of Pulla depends on the drought. In 1838 a full grown one sold in the Roree market for two pys, but the supply failed in the season following, and the demand made for it by the British, raised the price to six pys.

The peculiar manner of fishing for Pulla has been well described by Burnes in his voyage up the Indus. It is a novel spectacle to see the stream in the floods covered with men floating fearlessly on vessels of baked clay. A vessel (*muttee)* will usually contain twenty gallons of water, and is much flattened at the sides. Those half the size have handles through which the fishermen pass a rope to tie to their waists. The fisher covers the opening at the top of the jar with the pit of his stomach and swims into mid-stream, with a net ready for use on his shoulders. The net is woven in large meshes, and fixed at the upper end of a bamboo, twelve or fourteen feet long, with branches at the top like a fork. He plunges the net vertically into the water and remains motionless with his thighs drawn up on the jar until the fish are snared, when he tightens the mouth of the net, disengages the fish, spears them, and drops them into the vessel.

The fisher usually selects a reach of the river for his employment, and after floating the length of his beat, gains the shore to deposit his spoil. He either transfers the jar to his head, or leaves it hanging to his loins, and with the net on his shoulder walks across the point he swam round, and again commits himself to the water. Fallen trees swept along by the current sometimes break the earthen vessel, and endanger the fisherman's life. In situations liable to this accident, he substitutes for the *muttee* a large gourd enclosed in netting, which he binds over the pit of his stomach. It obliges him to swim low in the water, and often his head and shoulders alone are visible.

The fishermen of the Indus have spare figures and swarthy complexions; they wear beards like the other Sindees, and a wrapper of blue or white calico round their heads and loins.

A *muttee*, or earthen jar, costs from 12 to 16 anas.

A net with a handle of bamboo, or bank wood, 12 anas.

A gourd, 1 or 2 pys.

In lakes, and shoal water produced from an overflow of the Indus, large quantities of Pulla are taken in nets, called *jalee*, fabricated and worked by eight fishermen *(Mohone.)*

Another kind of net used by one man is six-sided, five feet in diameter at the opening, and shaped something like an umbrella without a handle: sticks, four feet long, supply the place of whalebone, and the intervals are filled with net, strong enough to hold fish three feet long. The cost of making does not exceed twelve anas.

The military of Khyrpoor may amount to 10,000 or 12,000 men (Moosulmans), and are paid part in cash, and part in grain at harvest. The Ameer grants lands to chiefs and jaegeerdars on condition of their supporting a certain number of troops for the service of the state in war time. They usually belong to the tribe of their chief, and work in his farm and household when not employed by Government. The soldier's stipend is disbursed half-yearly at harvest, but is frequently in arrears. The infantry get from thirty-six to forty-eight rupees per six months from their chiefs, and half a rupee a month extra in war time from Government. The cavalry receive from ten to thirty rupees a month, and are divided into five grades.

A few of approved courage receive 10 Khurwars* of grain, and 400 rupees in cash half-yearly.

The 2nd class about 8 Khurwars of grain, and 200 Rs. half-yearly.
The 3rd class about 6 Khurwars of grain, and 140 Rs. half-yearly.
The 4th class about 4 Khurwars of grain, and 100 Rs. half-yearly.
The 5th class about 2 Khurwars of grain, and 80 Rs. half-yearly.

In actual war the pay of the first class is increased to 2 rupees a day.

2nd class, ... 1½ rupee per diem.
3rd and 4th classes, ... 1 rupee per diem.

Most of the chiefs are Talpoorees, and also receive an increase of pay when employed, according to their rank.

A Moghul officer in the service of Shah Nuwaz Khan, the minister of Meer Ulee Moorad, receives twenty khurwars of grain and two hundred and fifty rupees in cash yearly to furnish four infantry soldiers. The grain is wheat and joowaree, delivered in equal quantities; the first in the Rubbee harvest, and the last in the Khureef, and the officer is at the charge of conveying it to his farm. The soldiers are Moghuls of his own tribe, and only serve in war, at other times they till his lands free of expence. If the officer's services are required in peace he gets his food from the minister, and always a suit of clothes yearly. The Moghul pays his soldiers at the rate of seven rupees a month, calculated at twenty-one rupees worth of grain and the same amount in cash each harvest, and they furnish their arms, and when travelling mess with their chief.

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* One khurwar is equal to 15 muns, or 600 seers.

Before the British troops occupied Sind there was scarcely any market for grain, but the demand for it has increased since 1839 to such an extent that the Ameers will be obliged probably to reduce the allowance to their troops, and place their pay on a new footing.

The soldiers of the Principality are chiefly cavalry, half of whom ride ponies, and the others camels, horses, and mules. Their arms are swords, shields, matchlocks, and knives. The Ameer's secretary inscribes the name of the recruit and that of his tribe in a register, and it is said that the whole military force could be assembled at the capital within eight days.

The soldier is never punished with stripes, and rarely abused. Meer Roostum makes the chiefs responsible for the conduct of their men, and deprives the guilty of part of their jaegeers. They receive their discharge if dissatisfied. The military are proud, and impatient of rebuke; and though faithful to a commander whom they love, are easily induced by ill-treatment to offer their allegiance to another.

There are no forts in Khyrpoor of any importance except Bukur and Dijee, and they are in bad repair, and incapable of resisting European artillery. There are *Kots* at Shergurh, Moobarukpoor, Oodur, Shahgurh on the Jeysulmeer frontier, Subzul on the Daoodpootra frontier, Kandura between Roree and Khyrpoor, and a few other places. They are merely high mud walls built round a square, and pierced for musketry, but without guns.

Dijee-Kot, or Ahmudabad, merits notice from having been the capital of the Soomras, and was destroyed by Ullah-ood-Deen, Emperor of Dilhee, towards the end of the fourteenth century of our era. It has not yet been visited by a European, and I am chiefly indebted for the following account of it to a Moghul officer lately in the service of the governor Ali Morad, youngest brother of Meer Roostum.

Dijee stands on a hill about eight kos south of Khyrpoor, and three hundred yards from the east bank of the river Meerwah, which is fed from the Indus, but contains water only three months in the year. The prince uses it as a depôt for treasure, grain, and military stores, and resides in the walled village below. There are four or five houses in the fort, and a well of brackish water, which supplies the garrison in time of siege. It is surrounded by a stone and brick wall, about thirty feet high and four thick, without a ditch. The only entrance is from the east through four gates connected by walls, and a *ghorchu* is mounted over the inner one, but none of the others are defended by cannon. The following guns of iron and brass are on the rampart :—

1 Eight cubits long.
3 Seven cubits long.
5 Ghorchu (so called from being drawn by horses) of four or five cubits.
8 Ramjungiyo, or Jinjalls, six or seven cubits.
3 Gobare (mortars) 2½ cubits.

Each Ghorchu requires eight horses to draw it. Most of the guns are new, but would do little against a European army, and the miserable condition of the Sind artillery is proverbial.* The small village of Dijee is surrounded by a wall and rampart twenty feet high, and seven thick at the base; it mounts six Ghorchus, but is too much decayed to offer resistance. Two of the eight gates are closed, and the others without shutters. A sheet of water, ten or twelve feet deep, and 150 or 200 yards wide, which has been formed partly by digging earth for the fortifications, encircles the place during the floods of the Indus, and dries up in the cold. months. The village contains three wells of good water, and the country is cultivated on all sides except the east, where there are hills. The crops are Joowaree, Bajree, and Indigo. Fuel is brought from a distance of two kos, and consists of tamarisk, *Kundee*, and *Ber*, (wild bullace). Ali Morad is probably entrusted with the command of Dijee because he is the martial genius of the family, and can assemble between 2,000 and 3,000 picked warriors in two days, from villages within a circle of twenty kos of his residence; they are chiefly Belooch, with some Afghans and Sindees, and one-half cavalry and the other half infantry.

The town of Bukur fills an important place in the history of Sind, and I have abridged the following account of it from a work in the possession of a Suyud family at Roree and Sukhur. The dates in native manuscripts are often faulty, and should be received in this instance with caution.

About the middle of the seventh century of the Hijru a Suyud of illustrious family, named Moohummud Mukaee, arrived at Bukur. He was the offspring of Ameer Moohummud Soojan and a daughter of the then king of Persia (a Turk), who presented him on his marriage with the tract of country situated between Mushud and Kandahar. Moohummud Shoojan subsequently made an expedition to the south of his principality as far as the banks of the Indus, and liking the situation determined to revisit it. He directed his attendants to write an account of the spot, and retraced his steps to Mushud, where he died soon after, and was buried in the mausoleum of his grandfather Huzrut Iman Human Sooltan Khoorasan Ubool Husun Ulee, son of Moosa Ruza. He left a son named Uhmud, and his widow pregnant of another. When the period of mourning was expired she went on a pilgrimage to Mudina, and from thence to Mukka, where she brought forth Meer Moohummud, surnamed Mukaee, from his birthplace. On her return to Persia she married a relation, and travelled with him and Moohummud Mukaee to Bughdad, where they were hospitably received by a nobleman named Shuekh Shahab-ood-deen Soohrwurdee. He formed a great friendship for Mukaee, and determined to give him his daughter in marriage, but his relatives supposing him a person of obscure birth, opposed it. The young man was indignant at their conduct, and asked them to accompany him to the burial place of Moohummud, that he might convince them of his holy origin. On reaching Mudina they entered the tomb of the prophet, when Mukaee exclaimed, "Salutation to thee, O ancestor," and a voice from the sepulchre replied, "Salutation to thee, O son;" which proof of sanctity so affected his companions and the townspeople that they fell at his feet, and after showing him extraordinary respect begged him to confer a blessing on their city by tarrying some time in it. He declined, on the plea of returning immediately to Bughdad, but determined first to visit Nujub, to give his companions another proof of his holy lineage. On entering the tomb of Ulee he addressed the spirit of the departed as he had done Moohummud, and a voice from the sepulchre confirmed his origin.

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* The Sindees have an exaggerated notion of the destructive power of our guns. When the Ameens of Hydurabad threatened in 1838 to oppose the march of our troops, a nobleman of their Court, who had heard strange accounts of our shells and shrapnells, advised them to desist, as it would be rash to attack an enemy whose cannon discharge balls from both ends.

Shahab-ood-deen was overwhelmed with shame at what had happened, and after asking and receiving his forgiveness gave him his daughter in wedlock. In due time the lady brought forth a son called Sudr-deen, whose tomb is in the fort of Bukur, she died immediately afterwards, and her father followed A. H. 587.

Among the papers that came into Moohummud Mukaee's possession on his father's death was the account of the Indus, already mentioned, and being curious to see the spot he travelled thither in the year of Hijru* 658. His companions agreed in considering it favourable for a settlement, and having mounted the hills to reconnoitre they discovered two herdsmen grazing cattle. These men undertook to point out the spot that was so much admired by Moohummud Shoojan, and departing at night they arrived at dawn the following day at the foot of a hill, which the horses and camels of the caravan, although urged repeatedly forwards, would not pass.* Moohummud Mukaee declared this a proof it was the site chosen by his father, and kneeling down offered thanksgiving, and because a cowherd conducted the caravan, and it arrived at the place at dawn, he called it Bukur, which means in the Arabic tongue "a cow," and "the morning."

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* The late Captain Macmurdo of the Bombay army, states that Bukur was founded by the Arabs, and built from the ruins of Atore. He mentions, on the authority of the Tohfut al Girami, that the town did not exist in the time of the Hindoo government, and that it got its name Bukur from Moohummud Mukaee some years after its foundation.

At this period the inhabitants of the country were infidels, and when the governor† Alim Khan Urghoon heard of the new worship he proceeded to seize and punish the offender; on appearing however before Moohummud Mukaee he suddenly lost the power of injuring him, and his disposition changed entirely: he entreated to be admitted to the bosom of Islam, and became one of its most devoted followers. He offered to assign lands to Moohummud Muhaee which the latter declined, and wished to purchase a spot where he could build temples to God. Alim Khan accompanied Sudr-deen to Sehwan to choose a site, and Suyud Ali, a friend of his father's, persuaded him to settle there, and gave him his daughter in marriage. He purchased lands in the vicinity, which he called "Rusoolpoor," but had not been long there when Moohummud Mukaee disapproved of his residing so far from Bukur, and recalled him. He then desired him to mount a domestic on a camel, and promised to purchase of Alim Khan and bestow on him as much land as the animal could traverse between dawn and dusk. The man rode through a district on the east bank of the Indus, which became thence forward the property of Sudr-deen, who cultivated and peopled it. The district is two kos from the town of Roree, and retains the name of Alee-wahun it received from Sudr-deen. It contains the villages of Machee and Turee Chanee, and part still belongs to the descendants of Moohummud Mukaee, and they pay no revenue to government.

Mohummud Mukaee died A. H. 691, and the Suyuds raised his son Sudr-deen to the chief dignity. Alim Khan's death followed soon after, and in the year 697 Sudr-deen invited Nusrut Khan, of the Khilchee tribe, the then Sooltan of Mooltan, to take possession of Bukur. The Sooltan on his arrival gave his daughter in marriage to Budr-deen, son of Sudr-deen, and swore on the Koran to assign a third of his dominions to her in dower, but broke his engagement and gave in lieu of it the country of Umeer Wuhun, now called Surjudpoor, in North Khyrpoor, which continued in the possession of Budr-deen's descendants until the Kalhoras deprived them of it.* The issue of this union was two sons and two daughters, one of whom married her cousin, the son of Tajood-deen, and received half of Umeer Wuhun for a dowry, Sudr-deen married first the daughter of his uncle Uhmud, by whom he had six sons and two daughters, and secondly the daughter of Suyud Ali of Sehwan, who brought him four sons and two daughters. On his death his eldest son Budr-deen succeeded to the *guddee* of the Suyuds. Sometime afterwards his brothers Ullah-ood-deen and Tajood-deen went to hunt in the forest of Ali Wuhun, and applied to the steward of the chase to defray their expenses; this he declined without Budr-deen's order, and his brothers enraged at his refusal slew him. Budr-deen was restrained by his relations and the Ulema from punishing this atrocious act, but their counsel displeased him, and he left Bukur resolving to fix his residence for the future at Mooltan. He was met, however, at Ooch by Hoosen Khan, a powerful Zumeendar of the Langa tribe, who had heard that the chief Suyud of Bukur was approaching, and went forth with his family to greet him, prevailed upon him by offers of service to settle in that city. He married Hoosen Khan's daughter, and his brothers having afterwards expressed regret for their conduct, returned with his wife to Bukur; about this time he betrothed his daughter to Suyud Julal of Bokhara, who lived on the island of Khwaju-ka-than in the Indus above Bukur, which gave great offence to his brothers, with exception of Tajood-deen, to whom Moohummud revealed in a dream his approbation of the match. His brothers continued in the same mind, and Budr-deen withdrew after the wedding with Julal and his wife to Ooch, and never returned to his native city. The descendants of Tajood-deen, son of Sudr-deen by his second wife, and grandson of Moohummud Mukaee, now occupy the first place among the Suyuds of Bukur and Roree. His great-grandson Saood-deen sat on the cushion A. H. 980. The posterity of Moohummud Mukaee are scattered over the country between Lahor and Thutta, and reside chiefly at Lahoor, Ooch, Mooltan, Bukur, Sukhur, Rooree, Shikarpoor, and Pulot.

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* This seems to confirm Captain Macmurdo's opinion that Bukur was not originally surrounded by water.

† He must have received this title on his conversion to Islam; his former name is not given.

I did not ascertain the date Bukur was first fortified. Capt. Macmurdo mentions that when the Urghoons made it their capital it stood on an island in the Indus, and Shah Beg built a brick wall round it for its defence. I find in the history of the Suyuds that Shah Hoosen Khan Urghoon held the government towards the middle of the tenth century of the Hijru, and rebuilt the fort ninety* tunab, or 1350 yards in circuit. Nadir Shah is said to have destroyed the works when he invaded Sind in 1747-48, but they differ little at this day from the description given of them in the time of Shah Hoosen. He made the wall fifteen yards high and four thick, and pierced it with four gates. The Koon, SE. facing Roree, is now shut; the Kingree S.; the Khururee N. towards Sukhur also shut; and the Nag to the N. E.; none of the gates have outworks or barbicans, but steps are cut in the rock for the convenience of obtaining water. The fort is an irregular oval, and has sixty-one bastions of different sizes connected by an embattled curtain, and the diameter, measured from the Koon to the Khururee gate, and from the Nag to the Kingree gate, is the same, namely twenty-one tunab, or 315 yards. Hoosen Khan appointed Muhmood Khan, a noble of his court, to command the fort while he travelled between Mooltan and Thutta, and it was at this period (A. H. 928) that the emperor Humayoon was defeated by Sher Shah the Afghan, and fled towards Bukur. When Muhmood Khan heard of his approach he hastily built an Alum Punah, or outer-wall to the fort, which embraced the whole of the limestone rock in the Indus, and was 125 tunab, or 1875 yards circuit, twelve yards high, and four thick, with four gates opposite those on the inner wall. It had seventy bastions, and two gardens called Nuzurgah and Goozrgah, which are now planted with date trees. Muhmood Khan had scarcely completed the defences when Humayoon arrived, and requested admittance. The governor gave no answer, and closed the gates, and reduced the imperial army to great distress for provisions. The Suyuds in Bukur pitying their condition, sent the emperor a present of sixteen hundred Khurwars† of grain, which relieved the wants of his army for a time, but the garrison still held out, and he was obliged eventually to raise the siege, and marched to Jeysulmeer. Afterwards he withdrew to the fortress of Umurkot in the desert, where the empress gave birth to the infant Akbar, A. H. 949. Humayoon subsequently returned to Bukur, and leaving his Wuzeers Moojirhid Khan and Moohibb Ali Khan with the army to besiege it, set out for

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* Nusrut Khan died A. H. 717, and left a brother named Allah-ood-deen, who was at Bukur at the time of his death. This event was followed by a revolution, and many competitors started for the throne, but I am not aware who succeeded to it. The MS. states briefly that the Jam of the Soomra tribe arrived about this time at Bukur, and assumed the government.

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* *Tunab.* A Tunab according to the measurement then in use was derived from Arabia, and equal to fifteen yards. The following are the dimensions of the Arabian tunab and jureb.

6 Barley grains placed lengthwise one above the other,	1 finger.
32 fingers,	1 ziru,
60 Ziru,	1 tunab.
4 Tunab,	1 jureb.

Thus a jureb comprised an area of 3600 yards.

This measure is still used in Kabool, except that only twenty-four fingers go to the ziru.

† A Khurwar is equal to about 1050 lbs. avoirdupois.

Kandahar. They failed in obliging Muhmood Khan to capitulate, and he died during the siege, and was succeeded by an officer of the same name. After this the Wuzeers marched to Thutta. Moohmud or Moohummud Khan, acquired independent, sovereignty and historians distinguish him by the title of Sooltan. He died 980, while Meer Eesa of the Turkhanee tribe from Thutta was besieging the fort.* In the same year Sadood-deen, son of Meran, of the lineage of Moohummud Mukaee Kuguree, was chief of the Suyuds of Bukur, amounting to seventeen hundred families. They had suffered great inconvenience and privations during the siege, and determined with the consent of their superior to abandon the fort.† They accordingly settled on the east bank of the river on the Lohuree hills, a little to the south of Bukur, and founded the city called after the hills Lohree, improperly Roree.

The fortifications were rebuilt and restored the last time by the governor Nuwab Ghoolam Sudeeg Khan, about fifty or sixty years ago, in the reign of Timour Shah, to whom Bukur then belonged. To obtain bricks he broke down the tombs of Puthans which covered the heights of Sukhur, and reduced them to a complete ruin. The open space between the walls is of irregular breadth, being in some places thirty feet, in others less than twelve. The Alum Punah to the NW. is now about eight feet high, and more than double the height to the south, and looped for matchlocks, but without embrasures: It does not extend to the east and south-east faces, where the Indus almost washes the base of the wall, and leaves no path over the rocks. About half the Alum Punah on the faces not mentioned is fallen, and was in course of repair when our troops arrived in 1838. The rampart is twelve feet wide. The natives consider the fort impregnable, but a few rounds from heavy artillery would throw down any part. The lofty embattled pinnacles are imposing to the eye even in ruin, and the fort is admirably situated on the Indus between the towns of Roree and Sukhur, but the superior elevation of the hills on both banks make it of little value as a stronghold. The British have converted a hill near Sukhur into a battery for seven cannon, and a few hundred native infantry and a small detail of artillery formed the garrison of Bukur in the autumn of 1839. A few seriss and peepul‡ trees take root in the walls, and hasten their ruin. A large bastion to the NE. has already fallen, and others totter. The fortifications are brick hardened in the sun, and faced with large square bricks and tiles laid in mud instead of cement. Part was formerly encrusted with porcelain glazed, coloured, and ornamented with Persian inscriptions.

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* The tomb of this enlightened prince still exists in good preservation among the Kalhora sepulchres at Thutta, and is remarkable for the beauty of its carvings.

† Captain Macmurdo states that the Arghoons were jealous of the great power possessed by the Suyuds, and compelled them to leave the town, and occupy Lohree. This was probably true, and the fact of their sending grain to Humayoon's army proves their bad feeling to the governor.

‡ Mimosa cerissa and Ficus indica.

The once flourishing city of Bukur contains now only twenty-five houses, and exhibits a deplorable picture of desolation. The British have converted the governor's palace on the east wall into a powder magazine, and the entire area is covered with mounds fifteen or twenty feet high of bricks, the debris of buildings and ordure that have accumulated for ages.*

The Indus sweeps round Bukur in a rocky channel, half a mile wide, in form of a horse-shoe, of which the fort occupies about the middle, and can be traced in clear weather through a perfectly level country for fifty or sixty miles. The stream directs its force at present against the west bank, a little above Sukhur, and were it to give way, there are no obstacles to oppose the course of the river over the flat plains. In event of this contingency, and the Indus deserting Bukur, it would be valueless as a military position; and it will probably happen at no distant period, unless checked by a strong embankment: the current turns now about eight miles from its natural direction.

In 1839 the Indus began to subside the last week of August, leaving extensive shoals opposite the fort, which arrested reeds and timber. It rose a little the three last days of the month, but six weeks afterwards shoals filled above a third of the bed, and decayed vegetable matter and slime, exposed to a burning sun, produced exhalations that generated remittent fevers. In the end of October the river had fallen about sixteen feet, and entirely deserted the NE. and SW. angles of Bukur, leaving a bank on the north face, a quarter of a mile in circuit, and a shallow ford alone divided the fort from the island of *Khwaju-ka-than*. The bank to the SW. was three feet above water level, and more than a furlong in circuit. The Indus appears to be forsaking its western channel, which had in the beginning of November only four and a half feet water in the deepest part, but the strong current could not be forded. The eastern channel has a width of nearly five hundred yards.†

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* Quantities of gunpowder, amounting to a hundred pounds together, were found buried in three places, and are supposed to have been introduced by the Talpoorees to blow up our troops. In July 1839 a Sipahi while cooking was thrown violently on his back by an explosion, but escaped without injury, though his food was projected into the air. People had lighted fires on the spot for months, and that an explosion did not take place before is ascribed to the dampness of the earth, which is filled with saltpetre. Had the great Magazine ignited, it would have destroyed every soul in the fort, and rent the fortifications to atoms.

† Captain Thompson, the Principal Engineer of the Bengal Column of the Army of the Indus, threw a flying bridge over this channel, which was swept away shortly after

In July and August the river pours down floods of water over the rocks at short intervals with angry violence, and casts up waves a mile and a half below Bukur with a noise that can be heard a distance of several miles. It frequently dashes boats in pieces, and drowns people bathing. In 1839 it thrice carried away the *pont volant* connecting the fort with Sukhur, and sacrificed the lives of two men employed to replace it; and the ferry boat that left Sukhur every morning for Roree lost about a mile and a half in the transit, which it accomplishes in the cold months in about seven minutes.

Bukur is the only pretty spot on the Indus in its course through Sind. The growth of timber is less luxuriant than at Gouahatee, the principal town of Assam, but the broad and rapid stream with rocks frowning over it, and the picturesque groves and islands, remind the traveller forcibly of that beautiful and unhealthy spot. The view of the town of Roree from the rampart is a fine subject for the pencil of an artist, and embraces on the north a small island, which the Moslem and Hindoo have endowed with a sacred character. A shrine and tombs, terminating in numerous gay spires of coloured porcelain, cover another island below the fort, and a third lower down the stream forms the abode of a solitary anchorite, who has lived there many years on the donations of pilgrims. Fruitful date trees mixed with the mango, plantain, and pomegranate, line the shores of the stream for miles, and flocks of pelicans, remarkable for the whiteness of their plumes, are seen in the summer months sailing majestically on the current.

Note on the rivers Nara and Arrul in North Sind.

The Nara ranks first among the streams of North Sind that receive their waters from the Indus, and spreads fertility over a district inferior in wealth and importance to none in the Ameer's dominions. I ascended the stream in June 1839 in a vessel of seven hundred muns burthen, and as the country it runs through has only been visited by two or three European travellers, I have thrown together a few notes on the voyage, which occupied a fortnight.

Nara signifies a snake in the Sind dialect; and the river richly deserves the title, from the extraordinary sinuosity of its course, equalling, if it does not surpass, that of the Goomtee in Oude. From the point where it leaves the Indus, about thirty-five miles below Bukur, to its junction with lake Munchar, is about fifty miles in a direct line, but nearly one hundred and twenty by the course of the stream. The distance across a belt of land in

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the army crossed in the middle of February. Another bridge over the western channel, connecting Sukhur with Bukur, stood till the end of March, when the floods destroyed it.

one of the turnings which the boatmen took an hour to circle was found to be only twelve paces From the sharpness of the turns it is often impossible to carry sail more than fifteen minutes together, and even when the wind is favourable for boats ascending the stream, they are dragged great part of the way by the track rope.

The Nara is navigated throughout its course four or five months of the year by vessels of eight hundred muns burthen. Boats proceeding northward always take this route in the inundations, to escape the current of the Indus, which it is impossible to breast without a strong favourable breeze. Those bound to Bukur re-enter the great stream about thirty-five miles below the fortress, and always return by it to the ocean.

The only part of the river where an obstacle occurred, was at the hamlet of Gahé, where the men, to save time, went up a channel which the farmers had lately opened by cutting an embankment to let off the floods which had risen suddenly, and threatened to destroy the crops. Here the stream, which has a westerly course above the village, turns abruptly south, sweeping round a sharp angle with immense force, and it was only after a dozen attempts that the men succeeded in dragging and pushing the boat up the rapids.

The stream rolls along a rapid volume of water from thirty to fifty yards wide, but sometimes diminishes to twenty, and has an average depth of about four. There are a good many ferries in the upper part of its course, traversed where the current is strong, by a *pont volant* worked by a man, who receives half a pye for conveying over a foot passenger, and double the amount for a horse or bullock.

The Nara is surrounded, where it leaves the Indus, with shoals and shifting sands, which make it difficult for boatmen to find the entrance. It is skirted in places by a wide expanse of fields unbroken by forest, and clusters of cottages at intervals of two or three furlongs. The grain cultivated is chiefly wheat, joowaree, and rice, and a good deal of cotton and a little tobacco. I saw ten or twelve Persian wheels working together, and in the gardens apple and nut trees, mangoes, grapes, and limes, luxuriant rose bushes, and a profusion of white and scarlet oleander. None of the fruits are remarkable for size or flavour. The soil is sand or stiff clay, and canals from six to ten feet wide, cut from the Nara, receive the floods and convey them through plains divided by low ridges and embankments: the crops are most luxuriant, but the mode of tillage slovenly, and the manure of a worthless description.

Fifteen miles from lake Munchar are extensive low lands bare of trees, and little elevated above the level of the Nara, so that banks are required to prevent the river overflowing. Part is cultivated with rice and wheat, and part pastures sheep, herds of horned cattle, and a small breed of horses. Before the British arrived in Sind, grain was so plentiful that the people measured at a guess the quantity demanded by purchasers, and even now about forty seers of wheat are sold on the farms for a rupee.

The shores untouched by the plough are without paths, and the dense jungle of acacia and tamarisk of large growth that overhang the water is never cut, and is a serious impediment to boatmen in tracking. It would be a great benefit to commerce, if the peasants were obliged to remove the trees. Their villages are usually at a short distance, and they obtain wood for fuel, building, and agricultural implements from the jungle, and might without much additional trouble cut it on the river banks.

The country towards lake Munchar is lower and more intersected by streams than the tract to the northward, and extensive lakes and sheets of water covered with lotos and rushes harbour multitudes of geese and other water-fowl. Neither the domestic goose nor the duck is an habitant of this region, and though the river swarms with fish there is not sufficient demand for it to induce people to make fish-catching a profession. The common fowl is plentiful, and the people hardly know what price to ask for it. They are glad to exchange their poultry for earthen platters and pipes, and glass bottles of British manufacture, and our boatmen were seldom without a chicken for supper. There are no alligators in the Nara, but it is infested by a small leach, which is troublesome to those who bathe in it.

Shortly before the river joins lake Munchar, it flows through a channel which had lately been deepened, and the earth thrown up on the banks gave it the appearance of a canal, but the resemblance soon disappeared. The thick groves of tamarisk exclude the air, and make the atmosphere in summer oppressively close, and when the floods subside in September and October the soil engenders miasma. No dew fell during the time we were on the river, and our party slept in the air surrounded by swamp and jungle without suffering injury.

The people on the shores of the Nara are nearly all Moosulmans. Their hamlets consist usually of small groups of cottages at short intervals along the banks, and a sequestered spot in the vicinity, sheltered by trees, is set apart for the dead, and held sacred from intrusion. The huts are generally on rising ground, and built of mud with terraced roofs, on which the farmers raise a chamber of reeds, where they pass the night in summer to escape the suffocating heat and stings of musquitos and other vermin that swarm the river. When the peasant is too poor to incur this expence, he removes his mat, or bedstead, to the roof of his cottage, and in situations liable to inundation, resides in a shed covered and fenced with tamarisk boughs. Sometimes he relinquishes part of this humble dwelling to his cattle.

The only town on this route besides Sehwan, is Khyrgaon, situated on the west bank of the Koodun, a branch of the Nara, and has not yet found a place in the maps; it is about thirty miles from lake Munchar, and has seven mosques and between 2,000 and 3,000 inhabitants, about a fifth of whom are Hindoos. The bazar was last year totally destroyed by fire, and the people were rebuilding it in a very superior style to that of the Sehwan and Thutta markets, which it promises to surpass in width and loftiness. The chief articles exposed for sale are striped and coloured cottons.

The lake Munchar bears E. 10 N. from the town of Sehwan, and about sixteen miles distant. In the season of inundation it spreads far beyond its limits, and overflows the groves of tamarisk and rushes on its shores. The figure is a long oval, between forty and fifty miles in circuit, and the greatest length is east and west. The shores are fringed with lotos, and rushes six feet high, except on the south-west side, where there is a waste of sand. Barren hills are seen at a distance rising in altitude as they recede from the lake, and form the modern boundary between Sind and Beloochistan. A hot dazzling vapour floats in summer over these desolate heights, which are as unpromising to the eye as the mountains on the coast of Yemen, and afford no shelter for travellers. The solitary village of Jungar, with the domed sepulchre of Peer Bubber, is to the south, and the only inhabited spot distinguishable; near it are extensive meadows where sheep and buffaloes pasture. Among the varieties of fish that inhabit the lake I recognized the Rohoo, the Silun, and the Saolee, which are speared with bamboos barbed with iron, a common mode of fishing where water is sufficiently clear to distinguish objects below the surface, which is never the case in the Indus.

Lake Munchar presents a beautiful sight in the season when the lotos is in blossom; the plants occupy a circle of more than twenty miles, covering the surface of the water with a thick carpet of leaves and flowers far beyond the range of vision. A channel fifty or sixty feet wide, winds with many sinuosities through the midst of the lotos beds, and a current sets to the eastward at about two miles an hour. The water is clear, but has rather an unpleasant taste of vegetable matter, and a pole, three fathoms long, was dropped into it frequently without touching the bottom. To reach the Nara in the western limit of the lake, boats force a passage through reeds and lotos, and no one unacquainted with the navigation could discover the mouth, it is so completely hidden from view by these plants.

The river Arrul may be considered almost a continuation of the Nara, and after emerging from the east side of lake Munchar has a course of about twenty miles to the Indus. The banks are fringed thickly with tamarisks and acacias, and an undergrowth of camel-thorn and turf. There are a few hamlets on the banks, and a good deal of land under tillage. The river expands nearly a hundred yards at Sehwan, and the depth in the middle is never less than twelve feet. Below the town its course is circuitous. Sehwan stands on an eminence on the west bank of the river, about four miles from its mouth, and close to the Lukkee hills, part of the great chain of Hala, that forms the west boundary of Beloochistan. The hills approach the Indus a little below the mouth of the Arrul, and consist of lime, in which a great variety of petrified shells, wood, and coral, are embedded, well worth the attention of geologists. I had not leisure to visit them, but Major Smee of the 5th Bombay Infantry, an indefatigable collector of shells, found the following specimens during two days he passed at Lukkee :—

Several species of Trochi,
A species of Helix,
—— —— Bulimus,
—— —— Turritella,
—— —— Cypræa,
—— —— Conus,
—— —— Terebellum,
—— —— Oliva,
—— —— Voluta,
—— —— Cryptostoma (genus of Voluta,)
—— —— Ostrea,
—— —— Pecten,

and a large species of Nautilus, measuring eighteen inches across. I believe the cowrie and core are rarely found in a petrified state. There are likewise hot springs in the neighbourhood, impregnated with sulphur and alum, and the last is an article of export.

Ruined houses, mosques, and sepulchres cover an enormous space at Sehwan, and are a melancholy record of the prosperity of the town under the Summa Jams, the Urghoons, and the Moghuls, before the Kalhoras deprived it of its independence. The modern town is said to contain 2000 families, of which a fifth are Hindoos, and there are forty grain sellers' shops. The houses are mud, and rise to several floors, the uppermost being often built on arches, and surpass in style and accommodation those of Hydurabad and Thutta. The bazar is narrow and crooked, but of considerable length, and covered with mats to exclude the sun. Belooch caps, shoes, silk strings for drawers, and a few other silk articles for the lower orders, are fabricated and exposed for sale. There is scarcely any trade, and an entire absence of bustle and activity. At the time of our visit there were forty boats at the town, including one of 300 muns in progress of construction. Twelve were small craft belonging chiefly to Sehwan, and the rest to towns on the Indus. More than half were without cargoes.

The shrine of Lal Shah Baz, a holy man of Khorasan, is the great object of attraction to Moosulmans and Hindoos, who flock hither from the Dukhun, Northern India, and the Punjab. The tomb is a quadrangular edifice covered with a dome and lanthorn; round it are small domes and blue enamelled spires and coloured porcelain tiles, and inscriptions in the Arabic latter decorate the walls. A gothic arch admits the visitor to a paved court with arcades, where a number of mendicants lodge, and solicit alms in a tone of command rather than entreaty. A door on the side opposite the entrance, closed by handsome shutters of hammered silver, leads to a lofty domed chamber with Arabic inscriptions, niches, and a canopy. It contains the tomb of the saint covered by rich cloths, and the balasters with silver plates, much corroded by time. The numbers of pigeons that have sanctuary in the building give it a musty, disagreeable smell. The sepulchre is reputed to be rich in money and endowments, and enjoys the revenues of the Sehwan gardens, and many villages in the district. The Ameers of Hydurabad make pilgrimages to the shrine, and went there in 1828 to return thanks to Allah for restoring health to the late Morad Ali, the principal Ameer.

The fort of Sehwan stands on a scarped rock, about a hundred feet above the Arrul, and divided from the town to the south by a deep channel, which is dry nine months of the year. The interior is completely ruined, but the corner towers and shell of two noble gateways are tolerably perfect.

The temperature of the air on the Nara, in June, was considerably higher than on the Indus, as shown in the following table:—

	Average range of the Thermometer on the Nara from 4th to 18th June 1839.	Average of Thermometer on the Indus during six days of June 1839.
Sunrise,	85°	85°
12 A.M.	103°	96°
3 P.M.	106°	98°
6 P.M.	102°	96°
8 P.M.	96°	91°

The mercury on the Nara rose several days at 3 P.M. to 111° and 112°, and once to 113° of Fahrenheit.

present or absent (a trivial idle mark); canines variable, large only in grown males, for the most part; stomach sacculated and banded as well as intestine; tail very long, commonly tufted, and usually exceeding the length of the animal. Very agile; grave deportment; gregarious; not docile.

Species new. Schistaceus hodie (Nipalensis of Catalogue). Habit of Maurus. Dark slaty above; below and the entire head, pale yellow; mere hands and feet somewhat darkened or concolorous with the body above; a pencil of black hairs radiating upwards from the brows; concolorous; tail longer than the body, and more or less tufted; skin black; nude on face, and on last phalanges of anterior digits; hair on the crown short and radiated, on the cheeks long, directed back, and hiding the ears; piles or fur of one sort, nor harsh, nor soft, more or less wavy, three to five and a half inches long on the body, closer and shorter on the tapered tail: thirty inches long: tail without the hair, thirty-six: hand six and a half; foot eight and a half. Females smaller, with shorter canines. Habitatt. Tarai forest and lower hills, rarely the Kachâr also.

GENUS MACACUS.

Pithex (Πιθηξ, antiq.) *nobis*.

Generic character. Facial angle 50. Muzzle not elongated; callosities large; buttocks often nude; structure compacter, but generally resembling that of *Semnopithecus*, only that the thumbs are larger; the orbits more salient; the head rounder; cheek pouches distinct and large; the canines similarly variable, being large and grooved in grown males only; the nares short, round, and terminal; the stomach simple, though the cœcum and rectum be sacculated; and, lastly, the tail shorter, though usually equal to half the length of the animals. Agile; lively; gregarious; familiar; intelligent; and very docile in confinement.

1st. *Species, new.* Oinops (οινωψ) nob. (Nipalensis* of Catalogue). Tail, without the hair, half the length of the entire animal; ears partially exposed; buttocks posteally nude, and like the face, carneous red; colour of fur a full brownish yellow-red or deep rusty, passing into slaty grey on the anterior quarters, and purpurescent slaty internally. Twenty-two inches long. Tail, without the hair, ten; hand four and a half; foot six; pile or fur of one sort, as in the last, and of like quality and set generally: two to three and a half inches long on body, shorter on the tapered, untufted tail, and not radiating on the crown of the head. Females smaller, with less canines. Habitatt. Tarai and lower hills.

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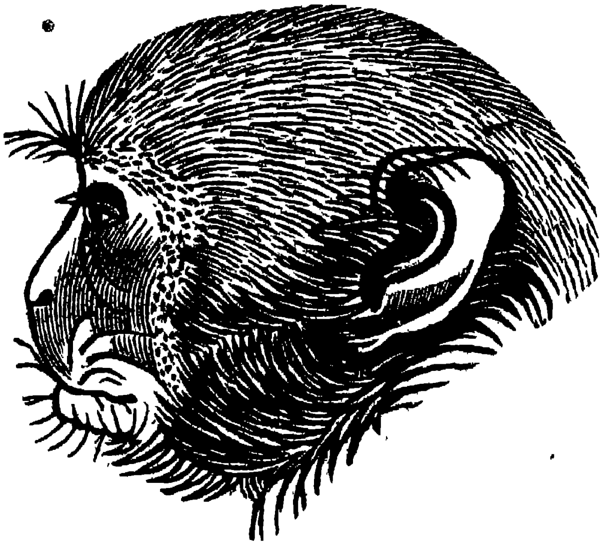
* Topical names dropt, as seldom appropriate.

2d. *Species, new.* Pelops (πηλος et ωψ) nob. Structure and aspect similar to the last. Colours more sordid or purpurescent, slaty partially merged in rusty; buttocks posteally (except the callosities) clad: face nude and dusky, flatter than in the last. Twenty inches long. Tail, less hair, nine and a half; hand four and a quarter; foot five and seven-eighths. Habitatt. Northern region of hills exclusively. Fur fuller and more wavy than in Oinops.

N. B.—In all the above three species, the digits are basally connected by membrane, which in the posterior extremities reaches forward beyond the first phalanges. In the first, the thumb scarcely reaches the base of the metacarpus: in the second and third species, it extends only half way down the first phalanx of the index. In the posterior extrimeties the same digit has a size and strength, especially in the Macaci, more analogous to those of the thumb in our hand. In *Semnopithecus* this digit extends a little beyond the base of the metacarpus. In the Macaci to the end of first phalanx of proximate digit.

NEPAL,
March, 1841.



HEAD OF MACACUS OINOPS.